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A CERAMIC STUDY OF VIRGINIA ARCHEOLOGY

By
CLIFFORD EVANS

With APPENDIX
AN ANALYSIS OF PROJECTILE POINTS AND LARGE BLADES
By C. G. HOLLAND

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UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1955

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - Price $1.25 (Paper)

LETTER OF TRANSMITTAL

Smithsonian Institution,
Bureau of American Ethnology,
Washington, D. C., June 28, 1954.

Sir: I have the honor to transmit herewith a manuscript entitled "A Ceramic Study of Virginia Archeology," by Clifford Evans, with an appendix on "An Analysis of Projectile Points and Large Blades," by C. G. Holland, and to recommend that it be published as a bulletin of the Bureau of American Ethnology.

Very respectfully yours,

M. W. Stirling, *Director.*

Dr. Leonard Carmichael,
Secretary, Smithsonian Institution.

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PREFACE

While I was a member of the faculty of the University of Virginia, Charlottesville, Va., funds were made available in the form of a research grant from the Richmond Area University Center, Inc., for survey and excavation of archeological sites within Virginia during the summer months of 1950. Not only would this work have been impossible without the financial assistance of this research foundation, but it was encouraging to discover that it was the first time funds had been granted for research in local archeology. It is hoped the results of the research are satisfying to the Richmond Area University Center, Inc., and that the report stands as an expression of my deepest appreciation for their cooperation, interest, and aid.

To single out individuals and express in different words appreciation for their efforts is always difficult in the limited space of a preface, but of all the magnificent cooperation throughout the project, none is surpassed by that offered by C. G. Holland, then editor of the Quarterly Bulletin of the Archeological Society of Virginia, who was living in Charlottesville at the time I was teaching anthropology at the University of Virginia. Through long conversations with Dr. Holland concerning the problems of archeology in which I demonstrated to him the technique that we had applied successfully in Perú and in the Amazon, he gradually conveyed to me the crying need for similar work in Virginia archeology. Admittedly, the area was far afield from my Latin American specialty, but the problems appeared interesting and when the means to carry out a limited program were made available by a research grant, the summer months of 1950 were spent in running a survey in order to collect a large number of sherds from as many sites as possible. Since Dr. Holland had a firsthand knowledge of numerous sites, he accompanied my wife Betty J. Meggers and me in some of our fieldwork. Not only did he devote considerable time to the field survey, but he generously offered all of his documented collections for restudy and incorporation in the survey.

Since Dr. Holland also had collections of projectile points from many sites, and we were obtaining a fair amount of this material in our own work, I suggested that he undertake a study of the chipped stone artifacts, independently of my ceramic analysis, to see whether the data would prove culturally significant. With some guidance and help on the methods of typology, he presented an excellent study, which, because of its significance, has been incorporated in this report as appendix 2. For his never-ending interest, scientific attitude, and cooperative spirit, the author wishes to express deep thanks to Dr. Holland. A word of gratitude is offered to Mrs. Louise Holland for her patience during the many hours when an evening's conversation and a weekend trip were occupied almost exclusively with archeological talk and problems.

The deepest appreciation is expressed to the following persons for their aid and cooperation in completing this study: Dr. B. C. McCary for loaning his stratigraphic materials from the Potts site, as well as several other limited surface collections; Maj. Howard A. MacCord for use of his 1947–48 survey notes; William N. Harris and Capt. William Luffburrow for their cooperation in helping us collect in the Stony Creek area as well as making their collections available for study; Asa Gray Phelps for collections from south coastal Virginia; Dr. C. A. Michael for sending his materials from Cornett site; Dr. R. H. Brockwell for filling a gap in the study with his collections from Charles City County; L. C. Carter for various collections from south-central Virginia; Harry W. Donaghy for sherds from the Portobago site; E. B. Sacrey for his sherd collections from the Richmond area; and to all the members of the Archeological Society of Virginia, whose interest in the history of the American Indian has kept archeology alive in a State where no museum or university is devoting even a part of its time to the subject.

Professionally, I wish to thank Dr. Irving Rouse, Dr. James B. Griffin, Dr. Carlyle S. Smith, Dr. James A. Ford, Dr. Gordon R. Willey, Dr. Waldo R. Wedel, Frank M. Setzler, and Carl Miller for cooperation, critical comment, and comparative data, and Dr. Betty J. Meggers for her companionship and aid in the field work and the original cleaning and numbering of the specimens, for her helpful comments and criticisms on the organization and presentation of the report, and for her aid in the preparation of the majority of the maps and figures.

Clifford Evans,
Division of Archeology,
United States National Museum,
January 7, 1952.

A CERAMIC STUDY OF VIRGINIA ARCHEOLOGY

By Clifford Evans

INTRODUCTION

In spite of the extensive archeological investigations in the Eastern United States, and the enormous concentration of excavation activities in the Southeastern States during the 1930's, the geographical area included within the borders of the State of Virginia somehow escaped more than casual attention. There are several explanations: (1) the area is not covered with massive earthworks which readily attract attention; (2) what artifacts have been found are usually of an unspectacular nature in comparison with those of other prehistoric cultures in North America; (3) the average citizen in Virginia manifests a greater interest in the European settlement of the area than in the pre-European aboriginal cultures, and hence all local museums and historical societies and institutions have directed their attention to problems other than those dealing with the Indians; (4) regrettably, there is no archeologist on the staff in any of the universities or colleges in the State; and (5) there is no State or private museum devoting its full energies to the aboriginal history of the area. To determine which of these individual reasons or what combination thereof is the cause for the archeological neglect of the area is not the point of discussion in this paper. It is hoped, rather, that this effort to show what can be done to reconstruct the prehistoric movements of cultural influences will stimulate interest in the archeological remains in the State and elaborate the work begun by Gerard Fowke and David I. Bushnell and being carried on by some of the members of the Archeological Society of Virginia.

The comparative section will demonstrate easily the gross lack of published literature on archeological collections and sites in Virginia. All too often some of the accounts by interested collectors or nonprofessionals merely tantalize the professional archeologist by the lack of detailed information. As a result of scanning the archeological documents covering the area and discussing the problems of Virginia archeology with C. G. Holland, then editor of the Quarterly Bulletin of the Archeological Society of Virginia, it appeared to the author that what Virginia archeology needed was a statewide survey combined with limited excavations. In this survey it was thought an attempt should be made to collect as large a mass of artifacts as possible from all areas as the groundwork to a study of the cultural development of the aboriginal groups from a temporal and a spatial standpoint. Only in this manner could one attempt to reconstruct the aboriginal cultural history of the whole area and to demonstrate either its cultural uniformity or its regional uniqueness. Only then could these cultural manifestations of Virginia be placed in their proper place in the total picture of the development of aboriginal cultures in the Eastern United States.

In addition to this need for an overall study of the archeology of the entire State, it appeared that future value to the archeology of Virginia would result from a demonstration of the application of up-to-date archeological techniques, especially in the analysis of ceramics, to the small group of active and deeply interested members of the Archeological Society of Virginia. Many of these members had excellent collections, ideally suited to this type of analysis, for the artifacts had been carefuly collected or excavated with the exact provenience accurately recorded; others had projectile points but had discarded the pottery, believing it to have no value; some had collected only the decorated or large sherds, leaving the rest on the site; and tragically, too many had put all their material in one box without any record of origin. In most cases the failure to record accurately the site data was not due to a lack of interest, but rather to a misunderstanding of just why such information was of significance in any forthcoming analysis of artifacts. With all this situation in mind, the summer of 1950 was devoted to a field survey in Virginia. With the help of all those members of the Archeological Society of Virginia who had collections properly documented and were willing to loan them for study, a much larger sample was obtained than otherwise would have been possible in the short time available for the project.

From a brief examination of the various types of sites throughout the State, it was soon apparent that the usual methods of stratigraphy were inapplicable except in a few places, and even then the deposit was none too regular nor did it exceed 2 feet in depth. Most sites had such shallow deposits, not extending below the plow line, that they had been completely disturbed by cultivation. The sparsity of material in any limited area that might be embraced in small test cuts suggested the need for increasing the samples by other methods. The present condition of the site, whether under cultivation, pasture, or fallow, hindered greatly the application of the best technique of study through excavation and testing. All of these factors lead to one conclusion—the quantitative methods of surface study of pottery, so successfully applied in other regions of North and South America, would be the only feasible and fruitful approach to a solution of the basic problems of Virginia archeology. At the commencement of this study, Carl Miller, of the River Basin Surveys, Bureau of American Ethnology, was already excavating (salvaging would be a better term in this particular case) a large village site, Clarksville, in the Buggs Island area of the Roanoke River, thus providing an intensified study of one large village and cemetery site. It was hoped that a coordination of the two methods of study—excavation and quantitative surface analysis and seriation—would produce data to establish a sequence of cultural development through time and space for the Virginia area.

The present study is based on 43 collections representing 37 sites and 2,504 sherds in the national collections of the United States National Museum and 65 other collections representing 55 sites and 21,543 sherds. Four more sites, which produced projectile points but no pottery, are included in the study. Hence, a total of 24,047 sherds from 96 different sites comprise the study. Such a large potsherd sample from so many sites scattered throughout the entire State makes it possible to demonstrate certain diagnostic ceramic trends for Virginia. Since the sherds from several sites were restudied by the author even though they had been briefly described in articles of the Quarterly Bulletin of the Archeological Society of Virginia, it has been possible to assure classification of these materials into the same system of types and wares (series). For the major trends of quantitative results, of course, only those sites with a sufficient sample could be used, even though sites with smaller numbers of sherds were useful in adding to the distributional analysis of the ceramic complexes.

Since it was hoped that the same objective and quantitative techniques applied to the sherds could also be used on the projectile points, the latter were studied by Dr. C. G. Holland with the advice and supervision of the author. In order not to prejudice our thinking on the relationship of one site to another during the classificatory process, the sherd studies were made independently from the point studies and later the results of the two were coordinated, refined, and interpreted. Unfortunately, the points were far less abundant than the sherds and in many cases some of the sites with the best samples of sherds produced some of the smallest point samples. For this reason, the point analysis is primarily an effort to demonstrate the usefulness of the approach and to emphasize the necessity of obtaining larger samples of stonework. Dr. Holland prepared the detailed descriptions and analysis of the points, which are incorporated in appendix 2, and then made available all his data to the author for inclusion in the interpretative sections of this report.

The report is organized in the following manner: (1) a generalized geographical sketch of Virginia; (2) a brief description of the sites, the materials collected, and a discussion of any excavations; (3) an explanation of the methodology used in establishing the pottery classifications, and a brief listing of the pottery types and wares (series); (4) an explanation of the seriation techniques utilized in the study and how the various seriation charts were established; (5) an interpretation of the ceramic data into meaningful cultural concepts; (6) the comparison of the pottery types from Virginia with those of surrounding areas; (7) the incorporation of other data, such as a study of chipped stone artifacts and how it supports the ceramic study; and finally (8) the conclusions and interpretative sections, with the tables of pottery types and the projectile-point study in the appendices. Instead of listing all the references consulted in a bibliography, only those sources actually quoted or with a direct reference are listed in the Literature Cited section.

BRIEF GEOGRAPHICAL DESCRIPTION OF VIRGINIA

The geographical features within the State of Virginia vary greatly. They range from the mountain ridges running along the western and northern boundaries, to the rolling lands and flats in the eastern and central parts and to the extensive eastern coast line, with the entire area penetrated by several major river drainages and their numerous tributaries flowing north, northeast, south, southwest, and southeast. All these features had a decided effect on the aboriginal movements and settlement patterns. Unfortunately, because of limitations established by the original research grant, the work had to be limited to State boundaries rather than geographical units; therefore many of the ecological areas are not as clearly defined as they might be. To be specific, the western boundary of Virginia, cut up by ridges and valleys of the Allegheny Mountains running northeast to southwest, is actually a part of the Kentucky-Tennessee-West Virginia geographical zone. In accordance with this situation, the comparative sections are handled from a geographical standpoint without the regional provincialism of artificial man-made State lines.

A further ecological determination of cultural migrations, far more important than mountain ridges, is the pattern of rivers, creeks, and streams that form a network of waterways controlling the movements of the aboriginal settlers. Almost without exception the sites showing similar cultural affiliations are located along the same drainage, while another drainage, although nearby overland, will show slightly different cultural materials. When one keeps in mind the fact that today the surface features of vegetation, forest, and cleared fields are entirely different from aboriginal times, and that heavy virgin forests once stood where open fields now exist, it is easy to comprehend why the waterways were the main means of communication, movement, and transportation. Throughout the discussion, reference should be made to the main map (see fig. 1) in order to visualize the relationship of sites to specific waterways.

Working from north to south in the State, 17 rivers of various sizes can be distinguished. The Potomac River, which now separates Maryland from Virginia, has a large tidewater area, but the headwaters of the Potomac do not figure as prominently in Virginia archeology as they do in some Pennsylvania, Maryland, and West Virginia problems. Sites along the lower parts have been reported since earliest colonial times. The next main river, the Rappahannock, is fed by the Rapidan which starts in the Blue Ridge Mountains, a local range of the Alleghenys. From the standpoint of an understanding of the central part of Virginia, the course of one of the largest rivers in Virginia, the James, is important. Down toward the mouth, several tributary rivers, such as the Chickahominy, complicate the picture by presenting cross-cutting drainages, along which minor cultural variations seemed to flourish with certain local differences from those along the main stream. In fact, the whole coastal region, with the extensive tidewater bays, can almost be considered a separate environmental situation.

Moving farther south into southern Virginia, we encounter the headwaters of the Nottoway, the Meherrin, and the Blackwater Rivers. These all drain into North Carolina, where they join to form the Chowan River before dumping into the sea. This network and the relationship of its headwater streams and creeks to the lower James River in the Richmond area are most significant when viewed from an archeological standpoint, for, although all these rivers are close to the Roanoke, a totally different cultural complex is found along the latter. Another principal drainage starts in south-central Virginia with the headwaters of the Otter, Roanoke, Banister, Staunton, and Dan Rivers. The latter two come together at Clarksville to form the Roanoke River which flows into North Carolina and on out to the eastern coast of that State.

For the rest of Virginia, the flow of the major rivers and streams is determined by their relationship to the various ridges and intermountain valleys of the Allegheny Mountains, a local range of the Appalachians, which cut across the northwest boundary of the State. In the extreme southwestern tip and the adjacent area to the east, each large valley between mountain ridges has a major drainage—the South Fork of the Holston, the North Fork of the Holston, the Clinch, and the Powell—all flowing southwestward into Tennessee. Farther to the northeast the same pattern of parallel ridges, and mountain valleys with large bottom lands and rivers in the valley floors, repeats itself except the drainage here is to the northeast; the South and North Forks of the Shenandoah River all eventually join the Potomac.

Geographically, then, the State has no true barriers to cultural movement, for the mountain ranges are all penetrated by extensive river systems, and the more rolling country of the central part of the State offered no important obstacles. The important factor to keep in mind, however, is that the directions of cultural movement and the limitations of regional development all appear to be directly influenced by the particular pattern of the rivers, their direction of flow, and the reaches of their feeder streams and headwater creeks. This point will be clearly demonstrated in the conclusions after the ceramic analysis has been set forth.

If the geographical features are as important as indicated, all the archeological sites should be found along or near the streams or rivers. Water is essential for living, but this need could be satisfied by springs alone. However, the rivers were also an important source of food. They provided easy and the only effective transportation through forested country, and most all of the best agricultural spots were in the bottom lands along the major streams. Consequently, any archeological survey, although conducted today by automobile on roads, must follow river drainages with a close inspection of areas which appear to be particularly inviting from a living, agricultural, and defense standpoint.

SITE DESCRIPTIONS

All the sites from which specimens were collected or studied are described briefly in this section. Regrettably, some of the older collections of the United States National Museum lack detailed and specific data pertinent to the collecting conditions, but since the material and its general location are significant in the distributional studies of the pottery types they were included in the overall study. The brevity of these particular descriptions is due not to choice but rather to lack of more information. Where excavations were undertaken, the details are given, following the general description of the site. For convenience in reference the sites are arranged alphabetically, by their local names with the same spelling and terminology used on the map (fig. 1). Although county information is given, the sites were not arranged in this order, for it has little value in a study of this type; the boundaries are too artificial. Where cataloged museum specimens were studied, the catalog numbers are listed for future study. Instead of listing in detail with each site description the number of sherds, projectile points, and blades collected from each site, these data are all consolidated for easy and quick referral in tables 1 and 9.

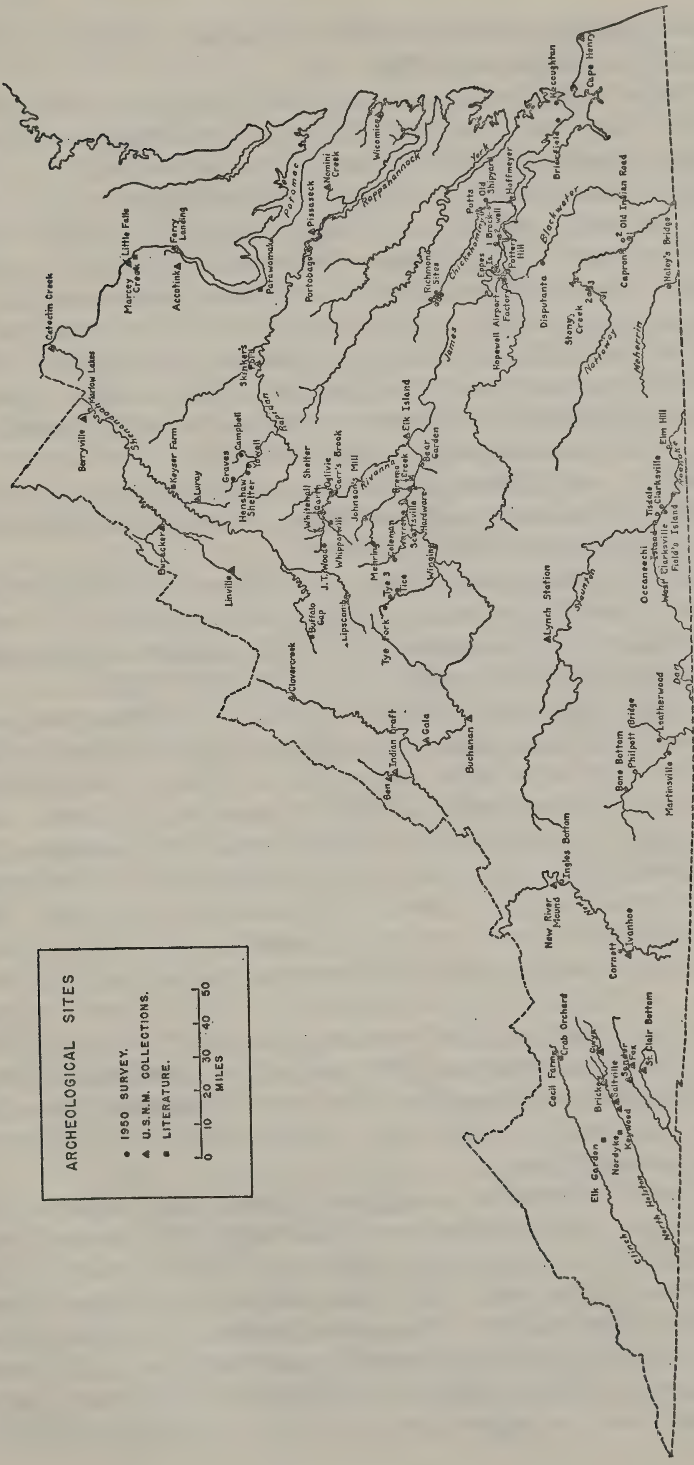
ARCHEOLOGICAL SITES
● 1950 SURVEY.
▲ U.S.N.M. COLLECTIONS.
■ LITERATURE.
0 10 20 30 40 50
MILES
Catoctin Creek
Little Falls
Marcey Creek
Ferry Landing
Accotink
Potomac
Patawomake
Pissaseck
Nomini Creek
Portobago
Wicomico
Rappahannock
York
Potts
Old Shipyard
Hoffmeyer
Kecoughtan
Cape Henry
Bridgeside
Blackwater
Old Indian Road
Chickahominy
Brock
Epps Is.
Pottery Hill
Richmond Sites
James
Hopewell Airport Factory
Disputanta
Stony Creek
Capron
Haley's Bridge
Nottoway
Meherrin
Berryville
Marlow Lakes
Shenandoah
Skinker's Ford
Rapidan
Keyser Farm
Campbell
Graves
Yowell
Henshaw Shelter
Luray
Whitehall Shelter
Earth
Ogilvie
Carr's Brook
Johnson's Mill
Rivanna
Elk Island
Bear Garden
Bremo Creek
Warren
Scottsville
Hardware
Coleman
Whipporwill
J. T. Wood
Buffalo Gap
Lipscomb
Mehring
Tye 3
Tice
Wingina
Tye Fork
Burkholder
Linville
Clovercreek
Indian Draft
Gala
Ben
Buchanan
Lynch Station
Staunton
Occaneechi
Tisdale
Clarksville
Elm Hill
West Clarksville
Field's Island
Roanoke
Dan
Leatherwood
Philpott Bridge
Bone Bottom
Martinsville
Ingles Bottom
New River Mound
New
Ivanhoe
Cornett
Crab Orchard
Cecil Farms
Bryan
Saltville
Brickey
Stander
Fox
St. Clair Bottom
Keywood
Nordyke
Elk Garden
Clinch
North Holston

FIGURE 1.—Map of archeological sites of the study.

Accotink (*Fairfax County*).—Sherds collected by Wilson in 1894; U. S. N. M. Nos. 169502 and 147682.

Bear Garden (*Buckingham County*).—At the junction of a small creek, called Bear Garden, on the right bank of the James River, a large bottom land extends along the river at the base of rolling hills. The site is almost directly south of a large hydroelectric plant on the James River and extends some 150 feet in length and 50 feet in width along a slight rise of land. The area was under corn and truck-garden cultivation at the time of the first collection and under winter weeds at the second examination. There appeared to be no depth or concentration to the deposit, with all the sherds, points, chips and fragmentary stone objects widely scattered over the site, and all within the line of plowing. Although the soil discoloration could not be easily determined between the site and surrounding land, the limits of the distribution of the artifacts easily defined the site as a roughly oblong village site.

Ben (*Alleghany County*).—Sherds from a railroad cut, collected by Fowke in 1891–92; U. S. N. M. No. 169840.

Berryville (*Clarke County*).—Site is 5 miles south of Mr. Taylor's Farm; sherds found loose on the surface, collected by Gerard Fowke in 1891–92; U. S. N. M. collection No. 169859. Another sherd sample was presented by Reichard in 1924; U. S. N. M. No. 326872.

Bone Bottom (*Franklin County*).—L. C. Carter discovered and collected materials from a site on a small sandy point of land on the north bank of the Smith River and on the east side of the mouth of a creek sometimes known either as Nickolas or Jamison's Creek. Although the site and some of the artifacts are briefly described by Carter (Carter, 1948) and he states that in his opinion it is the largest site in Franklin County, the exact dimensions are not given. Unfortunately the site is in the area to be flooded by the Philpott Dam. The collections loaned to the author for reanalysis had been obtained by Carter and Holland from the surface as well as numerous test excavations. The site extended over approximately 2 acres of land and from the various tests and the profile along the Smith River, sherds and blacker soil from the refuse were encountered from the surface to a depth of 18 to 24 inches. The site would definitely warrant further investigation.

Bremo Creek (*Fluvanna County*).—Although Dr. Holland had described the site and artifacts from it (Holland, 1950), we revisited the area with him to increase the collection. The habitation site is on the plain along the north (left) bank of the James River where Bremo Creek joins the river. The area of occupation is thinly scattered over several acres of land, extending upstream along the James from the mouth of Bremo Creek for 300 yards. The area of main concentration was on a higher rise near the river bank some 15 to 20 yards in diameter. Since the site had been under cultivation for years, all the material came from within the plow line. This collection was combined with Holland's original one and both were restudied as a single unit.

Briarfield (*Elizabeth City and Warwick County line*).—Mr. Phelps discovered and collected the materials from this site, loaning them to the author for analysis. The site is in a cultivated field near where the Briarfield Road crosses the Elizabeth City and Warwick County line, surrounded by swamp and lowland with the surface sherds and various refuse pits scattered over an area roughly 200 yards long and 50 yards wide. The surface materials were marked and kept separately from the rest of the collection. With the exception of pit 2, all the sherd materials from the other pits showed a cultural uniformity and fit into the same ware series. Pit 2 was the only one containing grit-tempered sherds in addition to shell-tempered wares, and it contained the burial of a fully flexed adult. There were no grave goods with the burial. The nine other refuse pits were scattered haphazardly over the area with no consistency as to arrangement or size or depth, ranging from 12 to 48 inches deep, and were filled with an accumulation of living refuse consisting of shell, artifacts, and sherds. The physical features of this site are quite similar to those of the Clarksville site, with various refuse pits scattered irregularly throughout the habitation site and an occasional burial in one of the pits.

Brickey (*Smyth County*).—One of the largest samples from this area came from a village site on the Carl Brickey farm three-eighths of a mile due south of Broadford on the left bank of Laurel Creek, which flows into the North Fork of the Holston River. Dr. Wedel (Wedel, 1951 b) made the collection in 1940 for the United States National Museum, but the materials were turned over to the author for analysis.

Brockwell 1 (*Charles City County.*)—On the left (north) bank of the James River, near Charles City a group of small creeks come together and drain into the river. On Gunn's Creek over an acre of light sandy soil, Dr. R. H. Brockwell collected sherds, stone tool fragments, chips, and projectile points from an old village site.

Brockwell 2 (*Charles City County*).—A little downriver from Site No. 1, located on "Old's Point," another village site was located by Dr. Brockwell on the north side of the James River. This site was slightly larger in extent, with chips, projectile points, stone tool fragments, and sherds scattered over about 3 acres of light sandy soil. The surface features of these sites and the type of material are representative of the sites in the Stony Creek area of Sussex County.

Buchanan (*Botetourt County*).—Sherds found with a large mass of burnt stones along the river bank, collected by Fowke; U. S. N. M. No. 136189.

Buffalo Gap (*Augusta County*).—Dr. C. G. Holland discovered another small shelter on the east side of the mountains on Buffalo Gap Creek and sent the materials for analysis. They included 38 sherds, chert flakes, some animal bone fragments, and a few clamshells. At a later time he hopes to explore the site more thoroughly, but for this study it is important to be able to extend the distributions of certain wares into Augusta County.

Buracker (*Shenandoah County*).—Site is on the left bank of the South Fork of the Shenandoah River near Hamburg; sherds collected by Slattery, 1947; U. S. N. M. No. 390961.

Cape Henry (*Princess Anne County*).—A site covered by sand dunes near Cape Henry; sherds collected by Norton in 1931; U. S. N. M. No. 351650.

Campbell (*Madison County*).—Mr. Yowell loaned a collection of projectile points for restudy from a small site near Novum, Va. No sherd or other artifacts came from the area.

Capron (*Southampton County*).—On the right (south) bank of the Nottoway River where Highway No. 653 crosses the river, a small bottom land, under cultivation, is between the road and the river bank. Part of the site was cut off by the road construction, leaving an area 200 yards long but only a few yards wide over which sherds and points are sparsely scattered. Luffburrow originally found the site and stated that he had once found a small grooved, well-polished ax here, but our finds were limited to potsherds and projectile-point fragments. The site was under intense peanut cultivation and could not be tested except with a trowel. The conditions suggested the same shallowness as the rest of the sites in Southampton and Sussex Counties.

Carr's Brook (*Albemarle County*).—Directly opposite Oglesby site on the right (south) bank of the South Fork of the Rivanna River, there is a bottom land on the property of Mr. Kelsey with a small stream nearby, called Carr's Brook (pl. 1, *b*), which flows into the Rivanna. The area from which sherds, points, and flakes are found is 75 yards from the river bank in an unusually low part of the land. The artifacts are scattered in a very limited area, not over 40 yards in diameter, and they are not too abundant. Although we did not excavate but merely made surface collections, owing to the present intense cultivation, Bushnell in 1911 (Bushnell, 1930) spent some time on this site, excavating large trenches to look for traces of the "Burial Mound" which was excavated by Thomas Jefferson. If the identification of this archeological site with the historical data recorded in Capt. John Smith's map and studied by Bushnell has been correct, any original mound has long been totally demolished, and only the evidences of scattered village refuse remain.

Catoctin (*Loudon County*).—Sherds from site on the Potomac River between Point of Rocks Bridge and Catoctin Creek; sherds collected by Stearns, 1949; U. S. N. M. No. 396357.

Chopawamsie Island (*Stafford County*).—Collecting data unknown except to state that the island is in Stafford County in the Potomac River; U. S. N. M. No. 196413.

Clarksville (*Mecklenburg County*).—At the time of our collecting in June 1950 the site was under intense construction activity in the rerouting of the Southern Railroad because of the forthcoming flooding upon the completion of the Buggs Island Dam. Carl Miller, of the River Basin Surveys of the Bureau of American Ethnology, was attempting to excavate the site ahead of the construction company's bulldozing activities and was succeeding mainly in salvaging what still remained of the large village site. In order not to interfere with his work, but in hopes of adding some data which could be used in the survey, a surface collection was made along with the excavation of two small strata cuts. The principal site was on the left (north) bank of the Staunton River, about 1½ miles northwest of the highway bridge. Although the contours of the area had been badly disarranged by the dirt-moving activities of the construction company, it was obvious that the site had been located on a fairly level part of the bottom lands approximately 100 feet back from the present north bank of the Staunton River. Surface sherds were scattered over an area 900 feet long in the northwest-southeast directions and about 225 feet along the east-west axis. From the amount of materials deeply disturbed by the bulldozers and carryalls, it was clear that the area was a large habitation site with a concentration of burials and refuse pits near its center. Detailed data on this site will be given in Carl Miller's forthcoming report of his extensive excavations in the area for the River Basin Surveys. Dr. Holland visited the site a few days before we arrived, before Carl Miller started his salvage work, and before the greatest construction activity had begun, at which time he made a surface collection and dug a small strata cut, in an area 100 feet north of our strata cut placed in the center of the site 90 yards to the east of Miller's concentration of burials. Since Holland's strata cut was not cataloged until later, his cut is called Clarksville Cut 2 and our central one is designated as Clarksville Cut 1. Although the surface collections made by Holland from a limited part of the north part of the site were cataloged and studied separately from our surface collection, no difference was indicated, suggesting that the major occupation of the site by ceramic-making peoples was by one cultural group.

Clarksville Strata Cut 1.—Strata Cut 1 was dug 2 yards square in 6-inch levels in one of the few remaining undisturbed sections of the site. Although it is clear refuse strata are not evident and the materials for each level are not abundant, the following observations were noted during the excavations. The first level, surface to 6 inches, was so near the sod level that the grass roots penetrated everything and it was clearly evident that this level had been well within the plow line in past years. Streaks of black ash and charcoal were scattered throughout the light tan to brown sandy loam along with unfired lumps of reddish clay and a very sparse accumulation of sherds, fireburnt stone, quartz chips, and a few small quartz triangular points. The second level, 6 to 12 inches, repeated the same features as the first level, except that there was abundant charcoal at the bottom of the level. Level 12 to 18 inches revealed the same conditions except the soil was slightly sandier. At the bottom of level, 18 to 24 inches, the soil had turned a light yellow-tan but still contained a fair amount of ash. Large quantities of mussel shells and very black ash with a few sherds were in the west corner of the pit, along with several large fragments of deer bones. The most difficult items to explain in this level were two square iron nails. Although the soil did not suggest disturbance, it is possible these could have been the result of some later disturbance, such as a posthole, but the evidence does not seem too strong in favor of such an explanation. A posthole or something of similar nature could have easily been determined in the light tan sandy soil conditions of the site. Level 24 to 30 inches changed from a rather uniform soil discoloration of ash and refuse to tan sandy soil in irregular streaks and pockets, in which the amount of charcoal and animal-bone fragments were sparser than in previous levels. In the west corner of the cut at a depth of 24 to 28 inches there was a large concentration of clamshells, a worked deer's jaw bone, broken deer bones, and six large potsherds. In the same level, but in the south corner of the cut, a pipe fragment of yellowish clay with fine sand temper was encountered.

Level 30 to 36 inches was sterile yellow sand except for two separate concentrations of materials, one in the north corner, Cist A, and another in the south corner, Cist B. Cist A was 50 inches long and 14 inches wide with the deposit extending to the 40-inch mark. This cist consisted of rocks, black soil heavily laden with ash, a few animal bones, some sherds, large fragments of charcoal, mussel shells, and bird bones. Beneath the deposit at the 40-inch mark there was an irregular dark-brown line 1 cm. in thickness, probably the line of demarcation of a heavy flood.

Cist B was 24 by 30 inches and extended downward to the 45-inch mark. It was not as highly concentrated with animal bones as Cist A but contained a large amount of mussel shells with a light concentration of ash. The strata cut was tested to a depth of 84 inches where water was drawn. All the lower levels from 30 to 50 inches were sterile yellow sand except for Cists A and B with sterile white sand from 50 inches downward.

Clarksville Strata Cut 2.—Strata Cut 2 was only 1 meter square, also controlled in 6-inch levels, and placed in the north part of the site in a region which appeared to be greatly discolored by ash and habitation refuse. The concentration of sherds was more intense per level in this smaller cut than in the larger Cut 1 with no unusual conditions encountered in any level. Each level contained a fair amount of sherd material, fireburnt rock fragments, quartz chips, a few projectile point fragments, animal bones, and some shell with ash and charcoal evenly distributed throughout the brownish loam. Yellow to white sterile sand was encountered in the last level of 24 to 30 inches.

Clover Creek (*Highland County*).—Sherds from Rivercomb Mound, collected in 1891–92; U. S. N. M. No. 169771.

Coleman (*Albemarle County*).—On the farm of Mr. Coleman where Highway No. 6 forms a juncture with Route 29 and where Rockfish Creek bends and crosses the highway, there is a large bottom land now under cultivation. Along the right (south) bank of the creek for a distance of about 30 yards, sherds and points were scattered over the surface from the creek back some 15 yards. The area is quite hilly and this site was located between the water's edge and a low rolling hill. Farther uphill nearer the house and barn the Colemans have found a large quantity of points and ax fragments but have never found sherds associated with this upper site. Although the sherds were kept intact and could be added to our materials for restudy from the two areas, the points had been mixed.

Cornett (*Wythe County*).—MacCord, in his 1948 survey (MacCord, 1947–48), lists this site, 44 Wy^v 4, as one of the most promising in the western part of Virginia. Heavy rains in 1917 and 1940 washed out many burials and associated materials and the area has been known to collectors for some time even though the present owners of the property do not allow haphazard digging. Fortunately, Dr. C. A. Michael, of Austinville, has been able to salvage many of the artifacts from the area after these washouts and it was he who loaned me for study his entire collection of sherds, miscellaneous artifacts, and points from the region. In spite of the fact that some burials have been found, the main part of the site is a large habitation village along a small ridge paralleling the left (north) bank of the New River. A small dry creek bed is near the western limits of the site. Although a few artifacts are found scattered over an area of 10 to 12 acres, the heaviest concentration is in an area about 2½ acres oblong, some 50 yards back from the river's edge. A wide variety of artifacts come from the site—potsherds, discoidals of stone, worked and rounded sherds, numerous pipe fragments, a few steatite bowl fragments, and a variety of projectile-point fragments and chips.

Disputanta (*Prince George County*).—One and a half miles from the town of Disputanta, to the east off Route 460 and onto Virginia Highway 625, the headwaters of the Blackwater River form what is known as the Blackwater Swamp area. Along the right (south) bank of this area the land rises slightly above the surrounding fields. Here scattered sherds, chips, and projectile points indicate a small habitation site, about 50 yards in extent. The site was visited with Wm. N. Harris, but collecting conditions at the time were not good because of the peanut cultivation; however, Mr. Harris loaned his specimens for analysis and incorporation in this study.

Eggledon Spring (*Giles County*).—This collection of sherds, made by Phillips and transferred from the Bureau of American Ethnology to the United States National Museum collections, lacks any more data; hence a map location cannot be given. The sherd data are included for additional pottery type distribution information.

Elk Island (*Cumberland County*).—This site is on the upper end of Elk Island about 2½ miles below Columbia near where Cumberland and Goochland Counties join; U. S. N. M. No. 136120.

Elm Hill (*Mecklenburg County*).—Downriver from the Buggs Island Dam on the left (north) bank of the Roanoke River is a high rise of land at the point of juncture of a small creek, called Blue Creek by some and Allens Creek by others, with the main river. The soil is very dark with an ash accumulation from habitation refuse making the soil a dark-brown sandy loam compared to a lighter tan nearby. This area, roughly circular and about 75 yards in diameter, produced a large number of ceramics, stone tool fragments, broken axes, quartz and chert points and chips, and many fire-burnt stones. At the time of our collection the field had just been cultivated and hence collecting conditions were not ideal, but the quantity of material suggested that the area had been intensely occupied in aboriginal times. Owing to the deep plowing for corn and the fact this site had been "potted" by local collectors for years, the depth of the refuse was not clearly determined. Scattered testing suggested no more than 6 to 10 inches; in other words, all within the line of cultivation. A collection in the United States National Museum (No. 382230), highly selected for rim sherds only, is obviously from this same site even though the records read, "Village Site—Allens Creek, near Redlawn, Mecklenburg County."

Eppes Island (*Charles City County*).—Sherds collected by Holmes; U. S. N. M. No. 136043.

Ferry Landing (*Fairfax County*).—Site near Mt. Vernon Springs; sherds collected by Wilson in 1894; U. S. N. M. No. 169444.

Fields Island (*Mecklenburg County*).—Although it was understood that Fields Island had several sites on it, only the one in the center of the island was visited because the water was so low the trip could not be made by motorboat and our time was restricted. This island, just below Lewis Island, in the Roanoke River, is about 8 miles downriver from Clarksville. At the time of our visit the Corps of Army Engineers had not started to cut down the trees on the island preparatory to the submerging from the filling of the Buggs Island Dam. Accompanied by Dr. Holland and Mr. Eperly, who had previously made several excavations in the area looking for artifacts, we were able to locate the site with ease and make a surface collection, a small strata cut, and some test excavations in the limited time available at the site. It was impossible to determine the exact limits of the site without extensive excavation owing to the intense undergrowth and the existence of an 8-inch overlay of sterile soil from recent flooding, but Mr. Eperly stated that judging from his own collections and those of others he estimated the habitation site covered an area at least 300 yards in diameter. The entire island was low but the site was located on a place rising about 5 to 6 feet above the water level. While Evans and Meggers put in a strata cut, 2 by 1 yard, Eperly and Holland cut back the sides of an old pothunter's hole to increase the sherd sample from the site. Ash was very heavily concentrated in the light sandy soil, suggesting a concentrated occupation of the area. At a depth of 40 inches a large number of deer bones, antlers, and sherds were clustered together as if thrown away at the same time, in a refuse pit.

Fields Island Strata Cut.—The cut was placed in a fairly level part of the site, 15 yards from the exact center of the island on the south side. Level 0 to 8 inches was sterile light-brown sand with rotted humus; Level 8 to 14 inches was a dark-brown, sandy loam streaked with charcoal, sherds, fire-burnt stones, and animal bones. The conditions of Level 14 to 18 inches were the same as the previous level. Irregular light-tan sterile sand was beneath the deposit, comparable in features to the first level. In spite of the depth of the one refuse pit encountered by Holland, examination of many of the amateur's test holes revealed the fact that the refuse generally stopped at a depth of 18 to 20 inches from the present surface. The sterile overwash on top of the refuse is the result of flooding; in fact, in recent historical times the island was flooded in the 1880's and in 1940.

Fox (*Smyth County*).—Another small village site appeared on the left bank of the Middle Fork of the Holston River 4½ miles due west of Marion on Fox Farm. A limited surface collection of sherds was made by Dr. Wedel (Wedel, 1951 b) in 1940 for the United States National Museum; all sherds were turned over to the author for incorporation in this study.

Gala (*Botetourt County*).—Sherds were found in barbecue holes or loose in black earth overlying the yellow clay. Collected by Gerard Fowke in 1891–92; U. S. N. M. No. 169731.

Garth (*Albemarle County*).—The surface collection from this site was loaned by Dr. Holland for restudy; the site was not revisited. It is a habitation on the bottom lands 1 mile downstream from where the Mechum River joins the Moormans River before they form the South Fork of the Rivanna River in Albemarle County. A concentration of sherds, points, fire-burnt stones, and chips were on a flat plain in a bend of the South Fork of the Rivanna on a bank about 15 feet above the river level.

Gordon (*Mecklenburg County*).—Mr. L. C. Carter located a site on high ground about one-half mile back from the Dan River and 5 miles northwest from Clarksville on the right (south) bank. He loaned his materials for analysis.

Graves (*Madison County*).—On the left bank of the Robertson River between a small unnamed creek and the river, near Syria, a large bottom land was under corn cultivation on the property of Mr. Elvin Graves. Although conditions for collections were not ideal at the time of visiting the site, Mrs. Graves loaned us her material for incorporation in the study. Over several acres of this bottom land chips and point fragments are scattered, but only a few potsherds have been found.

Gwyn (*Smyth County.*)—The village site is on the left bank of the North Fork of the Holston River just above McDaniel's Bridge about 2 miles east of Chatham Hill. The typical village refuse was all apparently disturbed by cultivation, limiting the collections to surface materials, collected by Dr. Wedel (Wedel, 1951 b.) in 1940 for the United States National Museum but turned over to the author for detailed analysis.

Haley's Bridge (*Greenville County*).—In MacCord's 1948 survey (MacCord, 1947–48) this site is his 44 Gr^v 1, located on the right bank of the Meherrin River where Virginia Highway No. 730 cuts across the river at Haley's Bridge. The road has split the site with scattered sherds and points on both the north and south sides along the bank which rises 6 yards from the swampy mud flats of the Meherrin River. The artifacts were distributed on the south side of the road in an area 50 yards in diameter, while those north of the road covered an area the same size but were much more heavily concentrated. The evidences of a colonial house on the south side of the highway explain the presence of colonial brick, crockery, iron, metal buttons, kaolin pipe fragments mixed with the aboriginal materials. On the north side of the road, none of these colonial materials were found, giving further evidence that this material has no particular relationship to the Indian artifacts. Sterile light tan to yellowish sand underlay the plow line with all artifacts in the upper zone. Although we obtained a larger sample of materials, MacCord reports no new materials not repeated in our collection. He found 2 steatite bowl fragments, 1 broken projectile point, a white kaolin pipe fragment, and 12 grit-tempered sherds.

Hardware (*Fluvanna County*).—In the summer of 1950 the site was revisited by Holland and us, but unfortunately the entire area was under high wheat and could not be studied; therefore, the original collection made by Holland was loaned for restudy. The habitation site was located along the junction of the Hardware and the James Rivers, near the small railroad stop of Hardware, on a flat bottom land extending 400 feet in length. Scattered over the entire field were a large number of projectile points, chips, fire-cracked stones, and sherds. Holland describes these materials and the site in more detail in his original account (Holland, 1950).

Henshaw Shelter (*Madison County*).—Holland and others had started the excavation of this small rock shelter, but the work was completed by Holland, Evans, and Meggers. Although a detailed description of the excavation technique and the finds has been published (Holland and Graves, 1951), all the artifacts obtained from the shelter were consolidated as a single group and incorporated in the present study. The small shelter was on the side of a hill near the top of a large granite outcrop overlooking the headwaters of Mulatta Run which eventually drains into the Rapidan River. The width did not exceed 20 feet at the entrance, was 10 to 12 feet deep, and varied from 10 to 12 feet in height at the entrance to 4 to 12 feet in the rear. Obviously, by the limited size of the shelter, it suggests use as a hunting camp or the living site of a single family. The deposits were all shallow, with all artifacts extending from the surface to a depth of 4 to 6 inches on the irregular floor surface of the shelter.

Hoffmeyer (*James City County*).—Originally the site was located by Dr. Holland and Dr. McCary as they were walking along the water's edge of the left bank of the mouth of the Chickahominy River where it empties into the James River. This site is just a few hundred yards south from Highway No. 5, just before the road enters the bridge across the Chickahominy. Although the washing action of the rivers has badly cut back the 8-foot bank, leaving some of the best specimens exposed to water action at the base of the bank, several darker areas along the bank to a depth of 12 to 20 inches suggested the presence of some refuse or cache pits. However, most sherds came from the grass roots or within a few inches of the surface. Previously McCary and Holland had found the fragments of a large restorable vessel washed out of the bank near one of these refuse pits. Examination of the entire bank for a distance of several hundred yards did not indicate any particular concentration of materials, although the highest point of the bank, which was then the garden of the landowner, produced more surface materials of points and sherds than the surrounding regions. No doubt this was at one time a larger site extending outward into the river, but the erosive action of the Chickahominy River has washed away most of the site. To increase the materials available for study, McCary's and Holland's artifacts were loaned for restudy.

Hopewell Airport (*Prince George County*).—At the local airport northeast of the town of Hopewell, along the water's edge of the right (south) bank of the James River, sherds and projectile points were scattered on the surface. Most of the material was hard to locate in the grass runways, but between several runways a field had been planted in soybeans, making it easier to see the artifacts. Harris stated that he had collected a large quantity of points from the area and although the ground features are not visibly different from the surrounding area, from the air it is reported that this region indicates large dark circular areas, which would suggest scattered camp sites or house sites. Conditions did not permit the testing of the depth of the deposit.

Hopewell Factory (*Prince George County*).—William N. Harris loaned some sherds for study from a site which is now underneath the present factory of the Celanese Corporation in Hopewell. From the nature of the materials there is little question that the area was a small habitation site along the right bank of the James River.

Indian Draft (*Alleghany County*).—A site on a small tributary of the Jackson River 6 miles above Covington; sherds collected by Gerard Fowke, 1891–92; U. S. N. M. No. 169837.

Ingles Bottom (*Montgomery County*).—This site is well known to the local collectors of Radford, for the large habitation site has always produced a wealth of sherds and points, as well as other miscellaneous artifacts. The site is in a rich, black bottom land, called Ingles Bottom, 3.6 miles upstream from the Highway No. 11 bridge in Radford on the right bank. It extends for about 30 to 50 yards in diameter on the secondary terrace of the river bank, and was under corn cultivation at the time Dr. Holland made the collection (Holland, 1948).

Ivanhoe (*Carroll and Wythe County lines*).—Site near Ivanhoe; sherds collected by Sargent, 1928; U. S. N. M. No. 340980.

J. T. Wood (*Albemarle County*).—Dr. C. G. Holland reports this site (Holland, 1949) on the right bank of the Moormans River in Sugar Hollow, about 3 miles due west of the Route 230 bridge crossing Moormans River. Only one sherd has been found, but large quantities of projectile points, chips, and stone artifacts have been recovered. Holland states that some of the material collected by people in the neighborhood has been lost and that a friend theoretically brought a small collection to Washington, D. C. No materials in the United States National Museum collections can be assigned definitely to this site. The points were reclassified for inclusion in this study.

Johnson Mill (*Albemarle County*).—Years ago Dr. B. C. McCary excavated this rock shelter, and recently he described the materials (McCary, 1951 b). A limited number of sherds were loaned by Dr. Holland, who had a small collection from the site for study. The site is located in the hills between North Garden and Carter's Bridge, on the right bank of the Hardware River. The small shelter is 30 feet above the Hardware River at the base of a 15-foot sheer cliff, with the floor shape resembling half an ellipse and not exceeding 14 feet in depth or 15 feet in width.

Keywood (*Washington County*).—A surface collection was made by Dr. Wedel (Wedel, 1951 b) in 1940 for the United States National Museum from a village site on Buchanan Branch about 1 mile east of Greenfield, which is along the North Fork of the Holston River. The sherds were turned over to the author for study and inclusion in this study.

Kicotan (*or Kecoughtan*) (*Elizabeth City County*).—Although the site where Mr. Asa Gray Phelps collected his materials is not the same location as the old colonial trading post site excavated by Brittingham (Brittingham, 1947), Phelps' site is so near the other that they have the same name. Frank Sommers, of Yale, a few years ago dug a site in the area by the same name; from the materials found it appears to be the same site excavated by Brittingham rather than the Phelps' site. When construction began for a new housing project in an area approximately half a mile from the mouth of Hampton Creek on its right bank, about an eighth of a mile from Hampton Roads, and less than 1 mile northeast of the colonial Kicotan trading post, Mr. Phelps noticed the presence of sherds in the construction excavations for basements and foundations. As best he could before building began, he excavated and collected materials from the site, which measured roughly 50 feet in diameter. The materials came from beneath the surface, which was sterile sand to a depth of 1 foot and apparently deposited as an overlay wash after abandonment of the site. The sherds were scattered unevenly and sporadically to a depth of several feet below the surface in a few places. Contrary to the materials excavated by Brittingham at the trading post, no colonial or trade objects of any kind came from Phelps' site. All his material was loaned for reanalysis and incorporation in this study.

Leatherwood (*Henry County*).—This site was discovered by Mr. L. C. Carter, of Clarksville, and it is his collection and site data which were loaned to the author for incorporation in this study. For collecting purposes Mr. Carter kept the material separate from what appeared to be two distinct concentrations—one, about an acre in size, on a slight uphill slope and the other, covering one-half acre, a lower site. Sherds, point fragments, a gaming piece, a soapstone bowl fragment, and several pipe fragments indicated the sites as places of habitation. Analysis indicated that the so-called "upper" and "lower" designations in this case had no significance but rather that the entire concentration was of a single habitation site. The village site is located at the junction of Leatherwood Creek and Route 58, on the north side of the road, and is about 5 miles east from Martinsville.

Linville (*Rockingham County*).—Sherds from various parts of a mound near Linville Creek, collected by Gerard Fowke in 1891–92; U. S. N. M. No. 169876.

Lipscomb (*Augusta County*).—This small site was originally located by Howard MacCord in his survey of November 1947 and was designated as 44–Au^{v}–2 in his records (MacCord, 1947–48). Unfortunately owing to the lack of an adequate storage or museum repository in Virginia, the material MacCord collected had become scattered and was unavailable for reexamination; hence the site was revisited in June 1950. On the left bank of the South River, opposite the community of Lipscomb, there is a high point of land rising 9 feet above the water level where Virginia Highway No. 635 crosses a small bridge over the river. The small habitation site was clearly visible as the highest spot along this part of the bank. Sherds were extremely sparse, but chips and points were scattered over an area 30 yards in diameter. Since the land was in permanent pasture, collecting was difficult; but sand pits permitted lateral troweling (pl. 2, *b*), which produced a fair quantity of archeological specimens. There is no question that the area was a site of only limited occupation. The artifacts were in a layer of light-gray soil extending from the surface downward for 6 inches. The bright-yellow sterile sand beneath yielded no cultural refuse.

Little Falls (*Fairfax County*).—Sherds from this site were collected by Reynolds in 1916. No other data exist, but the material is valuable in the distributional studies; U. S. N. M. No. 290214.

Louisa (*Louisa County*).—Sherds were collected by L. J. Crosby; U. S. N. M. No. 197477. Normally collections with as little provenience data as these are not included in this study, but since it was the only material from Louisa County, the sherds were included for distributional analysis of pottery types.

Luray (*Page County*).—Sherds, found in a mound, were collected by Nelson in 1899; U. S. N. M. No. 99283.

Lynch Station (*Campbell County*).—Sherds from a grave near Lynch Station, collected by Douglas 1916; U. S. N. M. Nos. 391072 and 391074.

Marlow Lakes (*Clarke County*).—In MacCord's 1948 survey (MacCord, 1947–48) this site is known as 44–Ck^{v}–1. In a bottom land 2 miles upstream from Castleman Ferry Bridge, between two small lakes, locally known as Marlow Lakes, and the left bank of the Shenandoah River, a concentration of sherds, chippings, and projectile points were scattered over an area about 10 yards in diameter near one of the lakes. Farther away from this spot but in the same bottom land and along the river's banks (pl. 2, *a*) another concentration of artifacts extended over an area 25 yards long and 7 yards wide. This second concentration in the same area is not mentioned in MacCord's descriptions and might not have been noticed unless the field was under cultivation. An abundance of fire-burnt stones and several good ax fragments were scattered over the area, but sherds and projectile point fragments were rather sparse. The entire deposit was within the line of cultivation, with sterile yellowish-tan sandy soil beneath. To the west of the lakes low rolling hills rise rather quickly from the bottom lands to the plain above, making the site accessible only from a private road off of Virginia Highway No. 7. Although adjoining bottom lands were checked, nothing was located. MacCord lists the presence of shell-tempered sherds, leached, from the site, but examination of our material suggests leached limestone because some sherds with unleached, crushed limestone were associated with the grit-tempered materials and no shell-tempered sherds were found.

Martinsville (*Henry County*).—Mr. L. C. Carter of Clarksville sent some materials from a surface collection of a village site for inclusion in the study. Although the sample was small, the sparsity of properly documented materials from this region demanded its inclusion in the study . The site was on the right (west) bank of the Smith River 1 mile below the power company dam at Martinsville and just off Route 220.

Mehring (*Albemarle County*).—This site was discovered by Dr. C. G. Holland (Holland, 1949), and since it produced only six sherds in his work it was not revisited by us. The nature of the projectile point material suggests the main occupation of the site by a preceramic hunting group and is of significance in that part of the point seriation data. The site extends over a limited area on the side of a hill about 2⅛ miles due north of Covesville; the sherds actually came from an area below the hill. Full details can be found in Holland's descriptive data.

Monasukapanough (*Albemarle County*).—Sherds from a village site on the Rivanna 1 mile north of Charlottesville were collected by Bushnell, 1930; U. S. N. M. Nos. 350155 and 364603. Also see data on Oglesby and Carr's Brook sites.

New River Mound (*Pulaski County.*)—Sherds under a pile of rocks with pottery overlying a skull; collected by Crawford on September 26, 1898; U. S. N. M. Nos. 197822 and 31765.

Nomini (*Westmoreland County*).—Sherds from a village site were collected by Holmes; U. S. N. M. No. 155076.

Occaneechi Island 1 (*Mecklenburg County*).—The present highway bridge over the Dan and the Staunton has a central pier on a large island which extends from this point upriver for approximately 4 or 5 miles. The island is today called Occaneechi Island in spite of the fact that there is some controversy on the identification of the island from some of the historical accounts of the principal site of the Occaneechi Indians. At the upper (the upstream) end of this island the banks are being badly eroded, revealing a slightly darker layer of soil just a few inches from the surface. The bank at this end is from 15 to 18 feet above the water level of the Staunton with a lower shelf only 6 to 8 feet above low-water stage but easily within the flood plain during high water. With the exception of a few sherds that had eroded from the upper bank and rolled onto the lower shelf all the cultural materials came from the high ridge along the south bank of the island. They were scattered sparsely for a distance of 300 yards downriver from the end of the island and inward for only 30 yards. The sherds and projectile-point fragments and quantities of blue chert flakes were all sparsely scattered from the surface to a depth of 2 inches—all within the grass roots. From the appearance of this particular part of the island and the thickness of the grass layer and the size of some of the trees, it is very unlikely that the area had ever been under cultivation. Testing excavations throughout the site area revealed no concentration of artifacts or ash materials in the light-tan sand. All the materials from the habitation site were considered as a single surface collection, owing to the shallowness of the deposits.

Occaneechi Island 2 (*Mecklenburg County*).—Approximately in the center of the island is a large farmhouse with several barns and large silos, now abandoned and soon to be flooded when the Buggs Island Dam is completed. This place was 3 miles downriver from site No. 1 and about 2 miles upriver from the highway bridge. Thirty yards north of the larger barn and in the flat land in the central part of the island, sherds, quartz and chert chips, flakes, and projectile points were widely scattered over a slight rise of land now under corn cultivation. Scattered testing did not show any depth to the site, but suggested the entire occupation had been well within the cultivation line for years. The artifacts were mainly concentrated in an area 100 by 30 yards, but occasional sherds were found in the surrounding land, for an area of about 3 acres, suggesting a large village site with a central clustering of houses.

Oglesby (*or Oglivie*) (*Albemarle County*).—On a bottom land on the left (north) bank of the South Fork of the Rivanna River, a large village site extends along the river just east of the road bridge of Route 29. The limits of the site extend along the river for about 100 yards and for about 30 yards in from the river's bank. When we visited the site the field was under intense corn cultivation, but apparently the accumulation of village refuse was always shallow and had all been disturbed by plowing. Sherds, point fragments, and several crude greenstone ax fragments were found and incorporated with an earlier collection made by Holland in the same area. This could be a part of Bushnell's Monasukapanough site which he describes as the part "On the left bank" (Bushnell, 1930, p. 21), but Holland is of the firm opinion that another site, today known as Pritchett Farm, conforms with Bushnell's site rather than does our Oglesby. It is most unfortunate that none of Bushnell's collections from the two villages on opposite sides of the bank were kept separately in order that a comparative study could be made of his larger collection of artifacts from the site. Our collections were kept distinct and studied as if two separate sites, split apart by the Rivanna River. Several collections from this site, combined with Carr's Brook, are in the United States National Museum listed as Monasukapanough but regrettably the ceramic sample is not large.

Old Indian Road 1 (*Southampton County*).—In MacCord's 1948 survey (MacCord, 1947–48) this site is designated as 44–Son^{v}–1. The site is in a large peanut and cotton field on the property of Mr. Bryant along Virginia Road 651, which is now paved, but originally was known by all the local inhabitants as "Old Indian Road" because of a historical marker nearby at the junction of Road 651 with Route 58 which states: "Nottoway Indian Reservation visited by Wm. Byrd while running boundary line Virginia-North Carolina, April 7, 1729. Indians living here as late as 1825." Unfortunately there is no way of knowing whether the two sites located in this area have any connection with these data. From the nature of the archeological material the author is of the opinion that neither our site 1 nor site 2 is in any way affiliated with the so-called Nottoway Indian Reservation. Unfortunately no local records give an exact location of the reservation. The present site area was on the west side of the road along the right bank of a small unnamed creek which flows eastward into the Assamoosick Swamp which later joins the Nottoway River. Sherds, projectile points, and ax fragments came from an area 300 yards in length paralleling the creek and about 20 yards from the west edge of the road back into the cultivated fields. The road apparently cut off the edge of the site; however, the east side of the road on the whole was very low and swampy. MacCord's collection was very limited—three steatite bowl fragments, one clay pipestem, 11 projectile point fragments, and 59 grit-tempered sherds, as compared with the abundance of sherds and point material we collected. The entire deposit was within the line of cultivation, with sterile light-tan sand beneath.

Old Indian Road 2 (*Southhampton County*).—MacCord's 1948 survey (MacCord, 1947–48) lists the site as 44–Son^{v}–3, but again his sample was highly limited as compared with our collection. He found only 8 projectile fragments and 49 grit-tempered sherds. The site is located along the south bank of a small, unnamed creek, which flows into the right bank of the Assamoosick Swamp before it joins the Nottoway River. The area is 1 mile south of the intersection of Virginia Highways Nos. 651 and 609. This bank, about 10 feet above the creek level, was the highest land near the creek, located on a portion of bottom land at the foot of low wooded hills bounded by the creek, the road, and the swamp. Although chippings and flakes were largely absent, a few quartzite points were found along with a large number of sherds and numerous oyster shells. It was not possible to determine whether these shells were the result of aboriginal food utilization of oysters or from the spreading of shell on the fields by the modern farmers, a practice most common in this part of Virginia. The site was in high corn and only a surface collection was made, but in the few areas tested with a trowel the deposit was all within the plowline with sterile yellowish-tan sandy soil beneath.

Old Shipyard (*James City County*).—This site was located by Dr. A. B. McCary on the left (northeast) bank of the Chickahominy River approximately 4 miles from Toano near Wright's Island. Bad weather conditions prohibited the revisiting of the site when we were working in that part of Virginia, so Dr. McCary loaned his materials for restudy. Sometimes the area has been called Menzal site.

Philpott Bridge (*Henry County*).—Mr. L. C. Carter loaned his material from this area for restudy, for in 1950 no survey had been made of the region by the River Basin Surveys of the Bureau of American Ethnology. The small habitation site is located on the north bank of the Smith River on the east side of Highway No. 57 just below the bridge at Philpott, Va., and about 3 miles downriver from the Philpott Dam.

Pissaseck (*Westmoreland County*).—A village site near Leedstown on the lower Rappahannock River near Leedstown; sherds collected by Bushnell, 1936 and 1937 (Bushnell, 1937); U. S. N. M. Nos. 378073 and 392206–7.

Portobago (*Essex County*).—Although this area is well known in the literature (sometimes called Port Tabago or Nantanghtacund) and from the published works of David I. Bushnell, Jr. (Bushnell, 1937), unfortunately a large sherd sample does not exist in the collections of the United States National Museum. Bushnell brought in quantities of points and stone implements, but limited his collection of sherds to a few sporadic and unusual pieces. Mr. Harry W. Donaghy in recent years received permission from the landowners to collect in the area and fortunately had kept the materials from the Portobago site separate in his collections. Not only was he willing to loan the sherd material for restudy but he would have taken us to the site if conditions had been favorable for collecting. Unfortunately the entire area during the past several years has been under heavy permanent pasture, and surface collecting or excavation has been restricted. The high bank along the right (south) bank of the Rappahannock River is gradually eroding and from here the largest sample of artifacts is being collected at present. Mr. Donaghy has located eight concentrations of artifacts on this projection of land and they would all be worthy of detailed investigation, but until the agricultural conditions of the area change, the limited sherd sample will have to suffice as at least an indicator of the pottery typical of the area.

Pottery Hill (*Prince George County*).—William N. Harris of Hopewell, Va., noticed potsherds and point fragments at a slight rise called Pottery Hill, on the north side of Bailey's Creek, east of Route 154 near Hopewell, after bulldozers had opened up a new road preparatory to developing the area into building lots. We later examined the site with him and increased the collection of sherd and other materials. All the material was collected from 3 principal concentrations and 1 minor one in an area measuring some 100 yards long and about 30 yards wide, with the road running through the middle of the site (pl. 3, *a*). These concentrations were labeled as locations 1, 2, 3, and 4, and the material was studied as separate entities, but since it was discovered that actually we were dealing with one site and the material was identical, the final study considers all the locations as belonging to one site, Pottery Hill. Harris' excavations at Pottery Hill included a test pit at location 3, 2½ feet square and dug to a depth of 10 inches. All the soil was screened, and 11 potsherds and a few fire-burnt stones were recovered. The soil was very sandy throughout, turning to a sterile yellowish sand beneath. There is some evidence of very early cultivation in this area, and the soil discoloration up to 10 inches could easily be due to plowing rather than to any particular accumulation of refuse trash, since the entire site suggests a limited occupation. At a later date, Harris dug another test pit about 18 inches square in location 3 a few yards from the first test but to a depth of 4 feet. He discovered that up to 9 inches the soil had been disturbed by plowing but contained a few sherds and chips. From 9 to 36 inches no artifact material was recovered but several pieces of natural quartz and flint were found. From 3 to 4 feet only sand was found; actually, the soil was culturally sterile below the 9-inch plowline. Another excavation was made by Harris at location 4, at the foot of the hill on the right side of the road near the shallow stream. The test pit was 2½ feet square and had originally been located by a slightly darker area in the light yellowish sand. There were some 62 sherds of a thinner and sandier ware than on the top of the hill, and since they were all in one place it suggests the possibility of their belonging to one vessel. Unfortunately, their condition was so poor it was impossible to determine the surface finish or to fit any of the pieces together. Harris describes the Pottery Hill excavations and artifacts in greater detail in a recently published article (1954).

Without any doubt the various excavations indicate that the sherd sample mainly obtained from the surface is quite representative of the total cultural picture of the site, for excavation reveals Pottery Hill as a shallow habitation site, all disturbed by cultivation.

Potts (*New Kent County*).—Dr. B. C. McCary for the past several years has been systematically excavating a large village site on the right bank of the Chickahominy River near Lanexa, Va. From all indications of the timber growth in the region, the site had never been under cultivation and the only disturbances were limited to the present timbering activities which had gouged the ground in places. In an effort to obtain stratigraphic data, Dr. McCary excavated the site and then was kind enough to loan his ceramic materials for analysis and incorporation in this study. Since that time Dr. McCary (1953) has published in detail his excavation notes, together with a study of the nonceramic materials. For the purposes of understanding the various strata cuts, a brief summary of his excavations is necessary along with the sketch adopted from his original field notes. Erosion action on the west side of the site developed a slight slope and tended to wash out some of the materials, but since the largest part of the site was on a flat surface the strata were undisturbed and level. Each block,[1] 5 feet by 6 feet, was carefully excavated in 1-inch levels with a trowel, and all materials were carefully recorded as to level. Dr. McCary is to be commended for the careful excavation technique. Reference to the diagram (fig. 2) will show the relationship of each block to the other and why in the pottery analysis some of the blocks were later lumped together for seriation purposes. Block A was the first excavation, 10 by 12 feet, made as a sort of test in an area which had been partially disturbed by logging. Approximately 50 feet to the south of this area the blocks were systematically laid out to give a cross-sectional view of the site both lengthwise and crosswise. Apparently there had been an overlay of sterile earth from flooding, which had been eroded partially from the slope through which Blocks B to F were cut. At the upper, uneroded side of these blocks, i. e., the east, habitation refuse extended to a depth of 24 to 26 inches but was not very common in the upper 10 inches of soil. Below the trash the sand was sterile, easily distinguishable by its light yellowish color. To get a profile of the slope, Block G was excavated only 2 feet wide and extended toward the bank until the refuse gave out. Eastward from Block F, and at right angles, Blocks H, J, K, L, and M, each measuring 5 by 6 feet, were placed in the level part of the site where there had been no effects from washing. Here the first 10 to 12 inches of soil were almost completely devoid of artifacts, with the sherd materials extending to a depth of 22 to 24 inches from the surface. Sterile yellowish sand was encountered beneath the refuse. Although quantities of fire-burnt stones, fine chips, projectile points, stone-artifact fragments, animal bones, and shells were distributed rather evenly in the various refuse levels, the details of these associations are given in McCary's report (1953). For the purposes of this ceramic study, they add little

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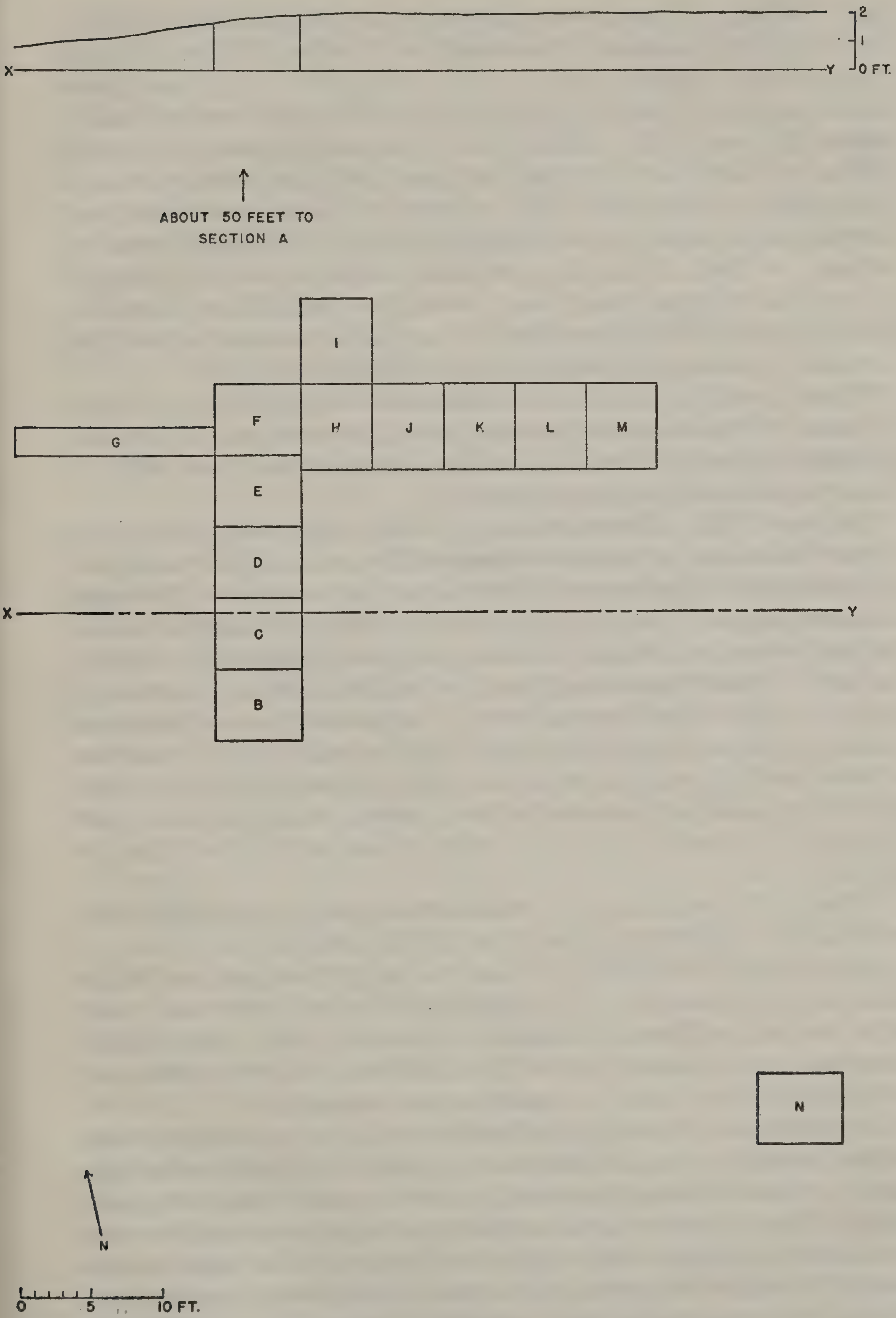
[1] The term "block" in Potts site excavations refers to the unit more commonly called "cut" or "section"; but, to conform to the excavation notes and data of McCary and to be consistent with some articles he is writing on the nonpottery artifacts from the site, his use of "block" was employed throughout this report. It is hoped this usage is not too confusing to the reader.


2
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AFTER B.C. McCARY, 1951

FIGURE 2.—Ground plan of excavations at Potts site to show relationship of the blocks and a cross-section profile of the site.

data. With the exception of a dog burial at a depth of 4 to 6 inches, a pile of small stones and a few sherds at 7 inches in Block D, and a few postholes in Blocks J and L, with a large amount of mussel shells in one corner of Block K, no unusual features were encountered in Blocks A through M. Later, in an attempt to increase the sample, McCary placed Block N in the flat part of the site about 40 feet to the southeast of Block B. The conditions of refuse, sterile soil, and artifacts duplicated those of Blocks H through M. Block I was dug adjacent to Block H on the north side to further test that area, but at the time of excavation it appeared more fruitful to extend the Blocks into the flat section of the site to get a clearer cross section than to continue in the north-south direction of Blocks B to F.

The various lumpings and consolidations of blocks in the ceramic seriation will be explained in the appropriate sections; for original analysis the materials from each block and from each level within a block were handled as separate units.

Richmond sites (*Henrico County*).—In an area along both sides of the Chickahominy River, northeast of Richmond, E. B. Sacrey has collected archeological materials for the past 25 years or so. Although the exact location of these sites is known so that one could reexamine the area, intense cultivation, building, etc., have practically eliminated the possibilities of increasing the size of the collections. Mr. Sacrey's specimens were loaned for comparative purposes. There was a limited number of sherds from the various sites, because they had not been collected with the same degree of interest as projectile points, but since they all represented the same cultural group, the artifacts are quite important in extending the distribution of some of the wares throughout Virginia.

Saltville (*Smyth County*).—Sherds from graves at Saltville were collected by Bramblitt in 1904; U. S. N. M. No. 149655.

Sander (*Smyth County*).—Along the right bank of the Middle Fork of the Holston River a village site is located about one-fourth of a mile west of Seven Mile Ford on Sander's farm. Only surface materials were collected by Dr. Wedel (Wedel, 1951 b) in 1940, and all the sherds were turned over to the author for study.

Scottsville site (*Buckingham County*).—On the south (right) bank of the James River opposite the town of Scottsville, there is a site upon the river bank between two small, unnamed creeks spaced 300 yards apart. The habitation site is on two separate, but connected, terraces with some of the materials eroding on the slope. The upper terrace was 10 feet above the lower, which rose 15 feet above the water level. Holland describes the site and materials briefly (Holland, 1950), but he turned over all the artifacts collected from the surface and minor testing for reanalysis.

Skinker's Ford (*Culpeper County*).—A village site from the upper Rappahannock River; sherds collected by Bushnell, in 1935 (Bushnell, 1935); U. S. N. M. No. 373797.

Saint Clair Bottom (*Smyth County*).—At the airport on the left bank of the South Fork of the Holston River, opposite Saint Clair Bottom, a few sherds were found indicating the area had been a village site. Collecting conditions were not ideal and a larger sample could not be obtained by Dr. Wedel (Wedel, 1951 b) in 1940; all sherds were turned over to the author for analysis.

Stony Creek 1 (*Sussex County*).—The four Stony Creek sites were originally located by William Luffburrow and William N. Harris, who had carefully cataloged all their materials separately from each site. By revisiting the sites with them, we were able to observe the various site conditions and to obtain a controlled collection from each separate site. In addition, they both loaned us their materials from each location for restudy. About 3 miles south on Route 301 from the crossroads of Stony Creek a large bridge crosses the Nottoway River; less than a quarter of a mile farther down the road, a small dirt road leads eastward between 2 large fields, 1 in corn and 1 in peanuts. One hundred and fifty yards from this dirt road along the left bank of a small creek leading into the Nottoway River, the bank rises slightly. In this area the soil is slightly darker than the surrounding light-tan sandy earth, and points, sherds, and chips are scattered in an area 50 yards in diameter. Since the field was under intense cultivation at the time of examination only spotty testing could be made, but this suggested that the major part of the deposit was all within the plow line, with sterile light-tan sand beneath.

Stony Creek 2 (*Sussex County*).—About three-quarters of a mile eastward from the Stony Creek crossroads on Virginia Highway No. 40 the Nottoway River meanders and cuts across this road. By the bridge in a large bottom land on the left (northwest) bank large quantities of sherds, points, and chips indicated the presence of an extensive habitation site. The materials were scattered in a high cornfield in an area about 300 yards long by 100 yards wide on the south side of the road. From all appearances the highway cut directly through one corner of the site, leaving a small undisturbed section on the north side of Highway No. 40. Here a few sherds and point fragments were found, but due to the fact that the foundations of an old colonial house were nearby more colonial objects than aboriginal ones came from this place. They included a small china doll, brown crockery, white kaolin pipestems, large quantities of colonial bricks, and a few fragments of iron kettles. Although a modern drainage ditch now cuts through a portion of the main site, there is no evidence that this was a natural feature, for there was no clear-cut break in the distribution of the artifacts on either side of it. From the spotty testing possible in a cultivated cornfield, it appeared as if the entire deposit was within the plowline with sterile tannish sand beneath. The only point of particular interest with reference to the surface collection is the great quantities of projectile points which we collected in a short time and which Harris and Luffburrow had obtained from their numerous visits to this site throughout the year. They had amassed thousands of perfect points in less than a year from only occasional work and visits in an area known to other collectors.

Stony Creek 3 (*Sussex County*).—Directly opposite site No. 2 on the right bank of the Nottoway River, sherds were found in only one small area of a large cornfield which produced scattered chippings and projectile points. Although the materials from this side were kept distinct from all the others for analysis, the nature of the artifacts and their scattered distribution suggest that site No. 2 was by all means the main village site of the area.

Stony Creek 4 (*Sussex County*).—In the area around the small town of Stony Creek on Route 301 there is a large number of village sites located along the Nottoway River and its various tributaries. The entire countryside is flat, the soil quite sandy but good for agricultural purposes, and the water supply of the river was constant enough to promote year-round occupation. Site No. 4 is about 1¾ miles downstream from the town of Stony Creek on the right (southeast) bank of the Nottoway on a small projection of land where the river bends sharply (pl. 3, *b*). Although the village site extends for a distance of 300 yards along the bank on a slight rise, several heavier concentrations of sherds, chips, and point fragments occurred within this area. At one spot there were the remains of what appeared to have once been a very early colonial house, explaining the presence of iron kettles, hoe fragments, earthenware jars, fragments of white koalin pipes, and a white clay bobbin (?) or loom part. Test excavations were made in several places later in the year by William N. Harris after the peanut crop had been removed, and unfortunately no depth exists to the deposit. All the materials are located within the plowline, i. e., from surface to 8 inches, with sterile yellowish to light-tan sand beneath. His testing revealed that all materials from the surface and beneath the ground were a homogeneous unit, suggesting a single occupation over a short period of time. Surface-collecting conditions were ideal, and a large amount of sherd and stone artifacts was obtained.

After passing through a small swampy lowland about 400 yards downstream from site No. 4, another small concentration of artifacts was located in an area about 30 yards in diameter. Due to the particular conditions of the cornfield at the time of this visit only a limited amount of materials was found; however, they were cataloged separately and this site was designated as site No. 4A.

Terrapin Neck (*Amelia County*).—The sherds from this collection were placed in the United States National Museum collections (No. 248292) in 1907 with no other data. They are included in the study, for they add distributional data to some of the pottery types, even though an exact map location is impossible.

Tice (*Nelson County*).—On Mr. Tice's farm, about 1½ miles from the Tiro Post Office and off Highway No. 56 across an old iron bridge, a small site is located on the left bank of the Tye River. The site was under alfalfa but could easily be determined because of a slight rise, the distribution of artifacts, and the soil discoloration. The owner stated that he had noticed the outlines of the site from the blackness of this soil as compared with the brownish earth, when he was plowing. The artifacts were limited to a small area 10 yards in diameter on a slight rise 6 inches above the rest of the field. The limited number of artifacts—a few potsherds, quartz chips, point fragments, several worked stones, an elbow clay pipe of yellowish clay found by the owner—suggests the area as a campsite rather than a large village site.

Tisdale (*Mecklenburg County*).—One-half mile up the Staunton River from the Clarksville site, a small village site lies between the left bank of the Staunton River and the right bank of an unnamed small stream along a small neck of high land near the mouth of the stream. The sherds were scattered for 75 yards parallel to the bank of the Staunton River but relatively concentrated in a circular area 30 yards in diameter. Since the field was under intense cultivation only a surface collection was made, which included sherds, fire-cracked stones, mussel shells, various projectile points and fragments, chips, and a small polished ax. Certain regions of the site appeared much darker than others, suggesting large concentrations of ash in refuse pits.

Tye River Forks (*Nelson County*).—At the point where the two upper branches of the Tye River join and form a single river along Highway No. 56, 3 miles upstream from the Tiro Post Office, there is a high flat place between the two forks which has been cut through for the construction of the road. On the right bank of the north fork of the Tye River there is a small site 10 yards in diameter, evident by a slight rise of 4 to 6 inches, which had quartz, chert, and quartzite chips and points on the surface along with several sherds mixed among some later trash of an old iron pot and some brick from a nearby colonial house. Across the road on the left bank of the south fork on a slightly higher spot only chips were found. The bank was 9 feet above stream level and would never have flooded. The location would have been ideal from a hunting and fishing standpoint and suggests such use as a small campsite rather than a large village.

Tye River 3 (*Nelson County*).—Half a mile downstream from the Forks site, in a cornfield on the right bank of the Tye River, a few sherds, quartz and quartzite chips, and points were scattered sparingly in a very rocky field along the bank. The artifacts came from an area covering 1 to 2 acres with no single concentration, as in the other two Tye River sites.

Warren (*Albemarle County*).—On a bottom land on the north (left) bank of the James River, about one-fourth mile downriver from the town of Warren there is an area of aboriginal occupation. The site is located on a gentle slope about 15 yards back from the James River and extending for about 300 yards along the river, near where Ballinger Creek joins the James. Since, at the time of our visit to the site with Holland in 1950, the entire area was under pasture land, the collection of sherds, points, and stone axes which he and Mary Wheat (Wheat, 1948) had made in past years through surface collecting had to suffice and was loaned to the author for reexamination and study.

West Clarksville (*Mecklenburg County*).—In the rerouting of the Southern Railroad through Clarksville, which had damaged the Clarksville site in 1950, another site was located on the right bank of the Staunton River, just east of the new railroad bridge. After we had left the area Mr. L. C. Carter collected sherd samples from this site and sent them for inclusion in this study.

Whippoorwill Hollow (*Albemarle County*).—Although Holland had visited the site in the past and described its location and artifacts (Holland, 1949), we revisited it with him and increased the collection of sherd materials. It is located in a small flat bottom land on the right bank of the Mechum River immediately upstream from the road bridge on Route 614. The sherds, chips, and point fragments were all limited to a very small area about 30 yards long and 10 yards wide along the river bank. It is highly possible that some of the road fill used to make the approach to the bridge disturbed some of the original site, but under no conditions was the habitation site ever large.

Whitehall Shelter (*Albemarle County*).—Since this site was completely and very carefully excavated by Holland and described in detail in his report (Holland, 1950), it is pertinent here only to mention the fact that the site was revisited by us with Holland present. All his materials, especially pottery, were loaned to the author for reanalysis according to the typological methods of this study. The site is a small rock shelter on the left bank of the Moormans River 100 yards downstream from its junction with the Doyles River at the eastern base of the Blue Ridge Mountains, with the river only 8 feet above low-water level, and very near the water's edge especially at high water (pl. 1, *a*). Reference to Holland's article will clarify the features of the shelter.

Wicomico (*Northumberland County*).—Site down near the point of land near the mouth of the Potomac River where Cockerells Creek comes into the Wicomico River. Sherds collected by Dinwiddie in 1893; U. S. N. M. No. 155104.

Wingina (*Nelson County*).—The area has been well known to collectors for some time, and in spite of the fact that Holland's published data on the area (Holland, 1950) states that Fowke does not mention this in his survey, the United States National Museum has material (No. 136157) collected from a site called "Wingina" by Gerard Fowke. The habitation site is near the James River on the left bank extending roughly 200 yards along the stream and is 75 to 100 yards wide. Holland had previously collected when the field was under alfalfa, but at our visit it was under corn, making surface-collecting conditions more ideal. Because of the cultivated condition of the site no attempts were made to test excavate. Since the chips, point fragments, and sherds of both Holland's collections and ours came from exactly the same area, they were combined and restudied according to the typology of this report.

Yowell (*Madison County*).—On the property of Claude Yowell near the Hebron Lutheran Church on White Oak Run there is a site with numerous points and chips, only one potsherd, on the side of a small hill just below the church graveyard. All of the material was on the surface with no depth to the deposit, and the nature of the finds suggests a preceramic site or merely a workshop and temporary hunting site.

Yowell Homestead (*Madison County*).—A series of projectile points (no sherds have ever been found in the area) from the old homestead of Mr. Yowell in Madison County were loaned for incorporation into the projectile study. The site was a few miles north from the Yowell site, with the exact location known only to Mr. Yowell.

THE CERAMIC STUDY

METHODOLOGY

After the necessary laboratory work had been completed so that all sherds were washed and individually marked with a field number, the sherd materials were ready for classification. By handling such a mass of ceramic materials—24,047 sherds at one time—it was easy to distinguish gross differences of paste, surface finish, firing, temper, rim, and vessel shape. In a brief review of the literature on Eastern archeology made before undertaking the study, it had been discouraging to the author constantly to find references to "cord-marked pottery," "fabric impressed," "cord-wrapped stick," etc., with no other comment on how and in what percentage these surface treatments were associated with shape differences, paste characteristics, and temper variations. Most exasperating was the absence of any description of the paste, except to say the temper was "sandy" or "gritty" or that it was "hole" temper. Was the sand fine or large particles? Was the grit waterworn or crushed quartz? Was the "hole" temper due to leached limestone or shell? All too often no indication of replies to these questions appeared anywhere in the text. When temper had been studied, it was often handled only as a separate entity, plotted and analyzed as such, so that one had little understanding of how the surface treatments were associated with the paste and temper characteristics. Fortunately, a few of the reports had utilized the pottery-type method and these results were encouraging. Therefore, with a hope of demonstrating to the interested members of the Archeological Society of Virginia that potsherds are more sensitive in interpreting cultural changes than projectile points, stone axes, or other stone objects, and to provide a better understanding of the archeology of Virginia, an intensive study of the aboriginal ceramics was begun. The sherds were analyzed according to the accepted methodology of associated characteristics forming an entity known as a "pottery type." For the aid of those semiprofessionals less familiar with this technique, the method will be discussed briefly.[2]

An impressionistic or a purely descriptive study of potsherds produces very limited results, although this method has value in combination with other studies. In this case, pottery types were established with the idea that from these specific groupings, larger combinations of several or more types, that is, "series" (sometimes called "wares") could be developed, and the whole could then be grouped together in what are known as pottery complexes. All of these classifications could be compared on an objective, percentage basis utilizing the methods of seriation. In this manner pottery would become our historical tool in reconstructing aboriginal cultural development through time and space.

The typing of the ceramics was conducted according to the following procedures. The sherds from one of the sites with the greatest number of specimens were spread out on a large work table and separated into piles based on distinctive paste features, such as texture, temper, and firing. It was discovered immediately that the general terms "grit" or "sandy texture," common in the literature, were not detailed enough; therefore, great care was taken to separate the sherds by temper, observing carefully the type of material, the size of the temper particles, and whether the temper was waterworn sand, rounded pebbles, crushed rock, powdered shell, angular limestone, or some other material.

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[2] For an excellent detailed discussion on the classification of pottery, see Phillips, Ford, and Griffin (1951, vol. 15, sec. 3, pp. 61–64).

After the breakdown based on temper, firing features were considered. Although variable in some groups of sherds, the method of firing was found to be so consistent in others that after several thousand sherds were handled, it was possible to identify immediately the exact type of some sherds and to predict the rest of the associated characteristics of paste and surface treatments by merely observing the firing features.[3] Granted the firing characteristics were often not as distinct as could be hoped, they were far more distinct than the literature would suggest.

Upon completion of the breakdowns into temper, paste, and firing characteristics, the surface treatments were studied with some care in an effort to subdivide the larger divisions ("series") into usable and meaningful units. It was soon discovered that, with the exception of fabric impressions, the surface treatments were divisible into easily recognizable categories. At the time of classification, the sole purpose is to separate the surface treatments by easily distinguishable features with no understanding at the moment whether these features will later turn out to have meaning from a cultural or time standpoint.

Surface treatments taken alone have little value except from a purely descriptive standpoint, as has been demonstrated many times. It is the combination of these treatments, both on the interior and exterior, with the paste, temper, firing, rim, and shape features that becomes significant and important from a comparative standpoint and is an aid to understanding the cultural development within an area throughout time. However, to derive these combinations (i. e., pottery types), the surface treatments must be observed, at first, in some detail to determine the range of techniques.

In this study the technique of surface finish by the application of a fabric was at first subdivided into the various categories recognized by Miner in his typology of textiles in archeology of the Eastern United States (Miner, 1936). However, to determine the various subdivisions of fabric impression, such as plain plaiting, twilled twining, plain twining, coiling, and others, with any degree of accuracy was impossible. This was true in over half the cases because of the faintness of the original impression or because of the present eroded or slightly worn condition of the sherd. Although the type of basket or fabric weave was recorded where possible, in the majority of the cases the presence of fabric impression of an indeterminate pattern was all that could be recorded. Later, in the detailed analyses of the significance of the ceramic types and wares, as well as in the type descriptions, the various weaves and technique of application will be mentioned where observable. For the reasons mentioned, with the exception of nets or netted fabrics, whether the looped or the knotted variety, all fabric impressions were lumped together as a single type. Although in some published reports net impressions are included under fabric impressions, some sites had such a large percentage of this material and so little of the plaited or twined fabric impressions that it seemed advisable to separate the material and then lump them at a later time if the subdivision proved to have no significance. The fact that it did turn out to be a useful one is indicated by the existence of a type called "net impressed" or "net and knot roughened" (meaning nets made by knotting rather than looping) in all of the series in various percentages. These two designations should not be considered as indicating the use of a different material in treating the surface. Rather, it differentiates a clear-cut, single impression of the net from one made by wrapping the net around the hand or a paddle and hitting the surface several times in the same place, creating a haphazard arrangement of the mesh and knots with a very rough and coarse finish. (See pl. 16, *a–j*.)

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[3] One afternoon, while this part of the report was in manuscript form, Dr. T. D. Stewart, Division of Physical Anthropology, came into the Division of Archeology with a handful of potsherd and clay "crumbs." Under normal conditions they would have been discarded, but they had unintentionally been included with some skeletal material sent to his Division for examination. He asked if I would venture a guess as to their origin. Admittedly, the surface condition was deplorable, leaving only the paste, firing, and the holes of the leached temper particles, as possible clues. These paste features, especially the firing and texture, immediately impressed me as typical of my Radford Series and I indicated that, since the sherds were of this series, their distribution should be somewhere in the western or southwestern extreme of Virginia. Dr. Stewart replied that the material had been sent to the United States National Museum from Bristol, which is in the extreme western part of Washington County, Va. This demonstrates the value of an intense study of paste characteristics; in this case, tempering, firing, and the texture of the clay were the only usable diagnostic features.

The term "cord marked" (or "cord roughened" as presently used in Midwest and Plains archeology) is used to refer to any surface that was treated by a paddle or dowel wrapped with a series of cords either closely or widely spaced. The surfaces of the vessels were beaten with these paddles, creating either a regular, nonoverlapping arrangement, or a haphazard, poorly defined effect as the result of repeated paddling of the same area, almost obliterating the individual features of the cords. Some vessels appear to have been impressed with a cord-wrapped dowel on the neck, near the rim, or on the inner lip of the rim after the entire surface had previously been cord marked or fabric impressed. Although this sometimes has been considered distinct enough to warrant the establishment of a separate type, the frequency here was too slight for this to be considered more than a minor variation or decorative technique of the general type. The category of "cord marked" does not include a single strand of cord applied to the neck or rim of a jar; this type of decoration is designated as "cord impressed."

The term "plain" means that the surface did not receive any further treatment after the vessel was completed and had been smoothed by the manufacturer.

"Simple stamped" in the literature on Southeastern archeology seems, at times, to be a catchall. The category has recently been redefined by Griffin and Sears (1950), so as to exclude brushing or scraping, which are admittedly at times difficult to distinguish. "Simple stamped" throughout this study means stamping with a thong- or root-wrapped paddle to make a smooth impression. In practically all the cases the simple-stamped impressions are not made with a paddle in which the surface has been directly grooved or cut. In technique this surface treatment is identical to the southeastern type, Mossy Oak Simple Stamped (Griffin and Sears, 1950).

To designate the surface treatments of those sherds that were roughened over and scraped, the term "brushing" is not very appropriate, for in too few cases is there an actual brushing as understood in the archeological literature of other regions of the New World. It is more accurate to apply the term "scraped" in most cases. A large number of sherds were scraped with a toothlike object suggesting a comb, and these are distinguished from those with haphazard scrapings by the term "combed."

With the exception of two types, one on which the incision is consistently associated with a fabric-impressed surface and another of cord-wrapped-dowel impressions on plain fabric impression sherds, the small amount of such decoration, will be handled as a variant or a subvariety of a particular type. Other occasional decorative elements, such as circle punctations, finger pinchings, raised ribs, can also be handled as occasional decorative variations within a type, rather than as wholly new and distinct types.

After the various sherds from the paste and temper groupings were broken down into the subgroups based on surface treatment, it soon became evident that some combinations were more common than others. Without, at that moment, making any detailed breakdown into shape and rim analysis, superficial observation of these shape features indicated they would also fall into definite combinations and consistent associations with the surface treatments and paste features. In other words, the distinctiveness of pottery types was evident even in the earliest stage of the ceramic classification of the sherds. The process just described was repeated with single collections from widely separated parts of the State so that some general idea could be obtained of the total range of the pottery from Virginia. Regional differences were immediately evident, further confirming the reliability of the classification.

As each collection was classified in these terms, it was soon observed that in many cases the surface treatment was the only variation, while the paste, temper, firing conditions, shape, and rim profiles remained constant. For example, the complete range of surface treatments occurred on sherds with crushed quartz temper, sandy paste, and fired in an oxidizing atmosphere to a reddish-orange or tan. A similar surface treatment, but varying slightly in popularity with the individual types, was found on sherds fired in a reducing atmosphere with a soft gray paste and crushed limestone temper. This recurrence of surface treatments on different paste features necessitated the application of a term to designate a group of pottery types which are closely related because of basic similarities in shape, rim profile, paste, temper, firing, and texture, but differ in the surface treatment or decoration. As a result the "series" (Griffin and Sears, 1950), sometimes called "wares" in the terminology of Southwestern or South American archeology, were established. Conforming to the current nomenclature of pottery classification the binomial system has been employed, in which the first name of the pottery type and the series name is a site or geographical term, usually derived from the area in which the material is most typically found, and the second name or names in the pottery types describes the surface treatment or decoration.

After all the collections were classified according to types, the pottery "series" were defined. It must be appreciated, as a point of methodology, that the final definition of these types and series developed only after months of refining, regrouping, and reorganizing so that ultimately each category had temporal, areal, or cultural significance. In some cases a pottery type showing little cultural significance in this study has been retained as a distinctive and integral ceramic group because it is felt that future and more extensive archeological work in Virginia will expand some of these minority types into meaningful cultural data. Finally, the more inclusive classificatory term and the broadest category in the pottery classificatory system—the "pottery complex"—was applied. If a group of pottery types or various series of types occur in the same area and at the same time level, this grouping then has meaning comparable to the "culture period" and is known to the archeologist as a "pottery complex." When this complex has a specific areal distribution, it can be called a "ceramic area." These classifications will be more meaningful after the seriation has been set forth, the comparative data with other areas has been fully discussed, and the ceramic interpretations are presented; however, as a point of ceramic methodology the terminology must be understood in order to appreciate the pottery types and series descriptions which follow.

POTTERY SERIES AND TYPE DESCRIPTIONS

Each pottery series, alphabetically arranged, is defined with a brief summary statement of the ware characteristics. The pottery types comprising each series follow and are listed in the order of their approximate importance within the series.

ALBEMARLE SERIES

The Albemarle Series consists of a group of pottery types on a ware typically light red to orange-red, sometimes gray-red, sandy textured, with crushed quartz temper or rarely with crushed granite or greenstone, angular, medium to large particles, and with diagnostic rim and vessel shapes (fig. 3). The following pottery types are included in this series.

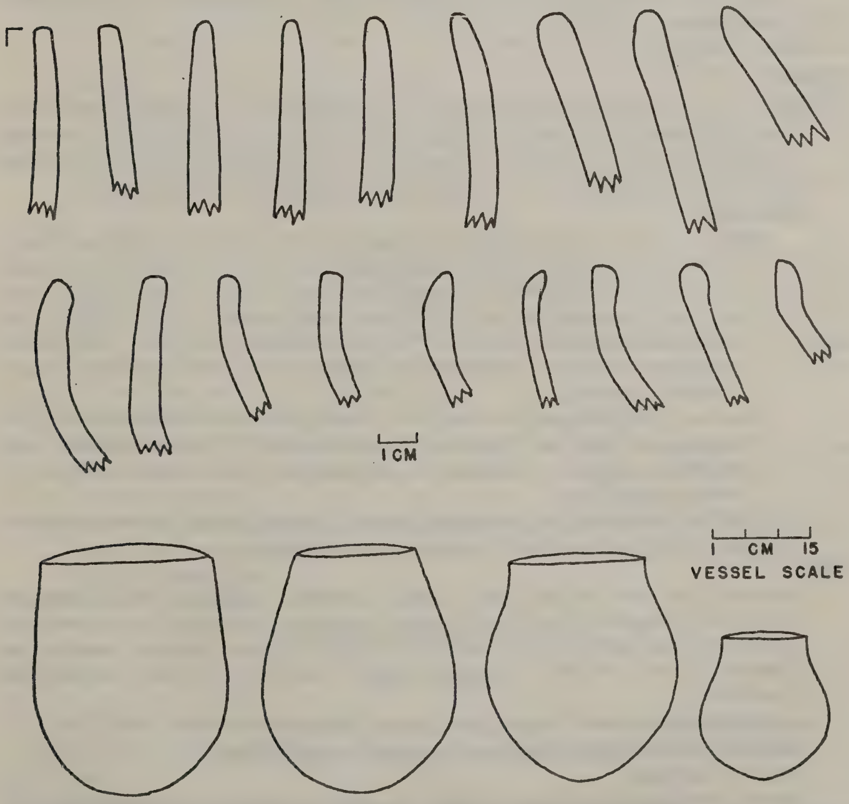

FIGURE 3.—Albemarle Pottery Series: Typical rim profiles and vessel shapes. Interiors of rims to the left.

ALBEMARLE PLAIN

(Pl. 6, *l*)

PASTE:

Method of manufacture: Coiling evident in over half the sherds; in a few the cleavage lines suggest stretching and patching.

Temper: Crushed rock; majority a crushed white quartz with large angular particles; however, depending on the geographical location of the site crushed chert, greenstone, or granite were used occasionally. Particles range in size from 1 mm. up to 1 cm., but average 3 to 5 mm. Quantity of mixture is usually from about 10 to 15 percent. Diagnostic feature is the angularity and largeness of the crushed temper particles.

Texture: Paste, compact, and clayey as compared to the grittiness of the Clarksville or Stony Creek Series. Fine water-bubble pores as well as crackle lines around the angular temper particles, quite prominent in most sherds. Angular fracture with the lines of weakness around the temper; however, not friable and rather hard to break. Rarely, mica particles are in the paste.

Color: Typically the core is a rusty, iron oxide to light orange-tan like the surfaces. In 25 percent, the exterior red hue extends inward from 1 to 3 mm. with the rest of the core a gray-black. The zoned core is most characteristic on those with gray-black interiors.

Firing: Oxidized; fire clouds extremely rare; in most cases complete and well-controlled firing.

Hardness: 3–3.5.[4]

SURFACE:

Color: The exterior and interiors on the majority are a rusty, iron oxide hue with some variation into light tan or light orange-tan with a reddish tint; all dull and not bright. The interiors are sometimes slightly lighter than the exteriors; in 25 percent of the cases, a gray to gray-black.

Treatment:

Exterior: Half of the sherds are very smooth and even, with no irregularities or pits; the rest smoothed over but with numerous irregularities, such as small lumps, pits, and bumps. Occasionally, the surface suggests the manufacturer had started to cord-paddle or fabric-impress the exterior, had abandoned the plan, and then smoothed it over so well that all traces of other treatment are eliminated completely.

Interior: Majority smoothed over, fairly even and regular with an occasional hand or finger swiping evident. A limited number are lightly combed or scraped on the interior with either parallel or overlapping lines.

Decoration: Occasionally, punctates with a sharp stick or narrow slits or gashes on the rim; otherwise there is no decoration.

FORM:

Rim and lip: Flat-topped with slightly rounded edges and no thickening or slightly rounded lip but not too regular in cross section. In majority of the cases the rim is fairly vertical or tapers slightly inward; rarely the rim outcurves. Mouth diameters range from 18 to 30 cm., majority 24 to 26 cm.

Body wall thickness: Range 0.4 to 1.1 cm. Majority 0.6 to 0.7 cm.

Body diameter: Estimated from sherds, only 24 to 30 cm.

Base: Rounded.

Shape: Reconstructed from sherds as globular bodied pot form (Willey, 1949, pp. 501–502) with insloping upper walls with either a constricted orifice or a short vertical neck.

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[4] Degree of hardness throughout this study follows the Moh's scale.

ALBEMARLE CORD MARKED

(Pl. 5, *a–n*)

PASTE: Same as Albemarle Plain.

SURFACE:

Color: Exterior and interiors usually a rusty, iron oxide to a light orange or tan with a reddish hue; dull and not bright. Interior the same, except in 25 percent of cases a gray to gray-black.

Treatment:

Exterior: Beaten with a cord-wrapped paddle. Impressions parallel or adjacent to each other, sometimes at a slight angle to the previous paddling and overlapping on only 5 percent of the sherds. In most cases the simple, double twisted, two-strand cords range from medium to coarse, averaging 2 to 3 mm. in width. The cords are not as fine as those in the Stony Creek Series. Surface paddled when clay moderately wet, leaving clear, distinct cord markings. In most cases, cords tightly wrapped on the paddle; in some as much as 5 mm. apart, averaging from 1 to 2 mm. apart.

Interior: Characteristically smoothed and hand swiped, but slightly uneven with the temper particles protruding.

Decoration: Typically none. Two varieties occur in very limited amounts: (1) Small nicks or gashes on the exterior of rim near the lip; (2) Cord-wrapped dowel impression along the exterior rim, or rarely on body surface, arranged in a design of parallel, diagonal, or vertical impressions. Usually on a smoothed, plain surface near rim, sometimes directly upon the cord-paddled surface. Dowel was wrapped with a fine, tightly twisted cord, averaging 0.5 mm. in diameter, not too closely wound. The dowel impressions vary in width from 2 to 4 mm., in depth from 1 to 2 mm.

FORM:

Rim and lip: Majority are rounded with no thickening or slightly tapered with a rounded lip. Few have a thickened coil, 1.5 to 2.0 cm. wide, on the interior or a slight extrusion on the exterior. With the exception of the first two varieties the others follow no uniform shape and suggest haphazard experimentation by the individual pottery. Mouth diameters 20 to 32 cm., majority 24 to 28 cm.

Body wall thickness: Range 0.4 to 1.0 cm. Average 0.6 to 7 cm.

Body diameter: Estimated from sherds; 26 to 36 cm., majority 28 to 30 cm.

Base: Rounded, with the majority having a slight flatlike area on the rounded bottom.

Shape: Reconstructed from sherds and large fragments as a round-bodied-pot form with straight sides or with a slightly constricted collar and a short vertical rim.

ALBEMARLE FABRIC IMPRESSED

(Pl. 4, *a–o*)

PASTE: Same as Albemarle Plain except 25 percent of the sherds range in the finer crushed temper particles than do the other Albemarle types.

SURFACE:

Color: Same as Albemarle Plain or Albemarle Cord Marked.

Treatment:

Exterior:

(1) Impressed with a plain plaited fabric made with a close fine weft and a medium coarse to wide heavy warp.[5] Impressions distinct. Usually applied parallel (horizontal) to the lip or at best slightly diagonal. Width of impressions varies from 2 to 5 mm.; depth ranges from 0.5 to 2.0 mm., with the majority 1 mm. Around 75 percent of the total sherds in the type fit this surface technique.

(2) Rarely roughened with the same fabric as above, but with overlapping, sloughing, and crisscrossing, suggesting the wrapping of the fabric over the hand or a paddle and beating the vessel surfaces indiscriminately.

(3) Rarely impressed with an open mesh, simple twined fabric measuring 0.8 to 1.0 cm. from weft to weft.

Interior: Most commonly smoothed by hand swiping; no scraping marks remaining; fairly even, with temper particles protruding when surface slightly eroded. Occasionally, interior varies:

(1) Combing in a crisscross pattern on only 6 sherds in the entire type.

(2) Eight sherds impressed on the interior, usually near rim, with the same fabric used most commonly on the exterior. This paddling or roughening with the coarse warp and medium close weft fabric is not neatly applied as on the exterior, but slightly haphazard, as if an afterthought, or purely accidental from holding the vessel while treating the exterior.

Decoration: Rare, typically none. Sometimes: (1) Cord-wrapped dowel impression on inner lip, diagonal and widely spaced, identical to decoration type No. 2 of Albemarle Cord Marked. (2) Punctates or small gashes near the lip or neck on top of the fabric-impressed exterior surface.

FORM:

Rim and lip:

(1) On those sherds fabric impressed on the interior, the rims are slightly incurved with a slight thickening at the rounded lip. Mouth diameters 18 to 22 cm.

(2) Those few with the cord-wrapped dowel impressions on the inside are slightly thickened with an outflare to the lip forming a slightly recurved rim. Mouth diameters 18 to 26 cm.

(3) Majority unthickened, rounded or flat top lip, incurved or straight sided, a few recurved rims with everted lips. Mouth diameters 20 to 30 cm.; majority 26 cm.

Body wall thickness: Range 0.4 to 1.0 cm. Average 0.6 to 0.7 cm.

Body diameter: Estimated from sherd curvatures, ranging from 24 to 32 cm. with the majority 26 to 28 cm.

Base: Rounded and gently curved.

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[5] This has also been called cord-wrapped dowel, cord-wrapped paddle edge, coiled basket, plain twining, simple twine, and close coarse weave in various publications. Correspondence with Griffin on the subject indicates that for practical purposes, he and others agree that it is difficult and at times impossible to distinguish the different weaves in the majority of the cases. The type of fabric impression indicated in this pottery type (see pl. 4, *a, d, j, l*) is commonly known to the majority of the Eastern archeologists as "plain plaiting." Refer to Dunlap Fabric Marked and Long Branch Fabric Marked in the recent "Prehistoric Pottery of the Eastern United States," by Griffin and Sears (1950), as the basis for present accepted use of the term given above.

Shape: Either a round body with a short vertical rim with an everted lip or a round pot form with inslanting upper walls, forming a slightly constricted orifice.

ALBEMARLE NET IMPRESSED

(Pl. 6, *g*)

Paste: Same as Albemarle Plain.

Surface:

Color: Same as Albemarle Plain.

Treatment:

Exterior: Impressions of a wide-open knotted net deeply impressed upon wet clay with no overlap of impressions. Mesh ranges from 0.4 to 1.2 cm. square with the majority 1 cm. square. A few specimens paddled or roughened with a knotted net, leaving a haphazard pattern of knots.

Interior: Smoothed and even on most sherds. Some irregular with finger marks still visible from compressing the coils.

Decoration: None.

Form:

Rim and lips: Incurving or straight walls slanting inward, with rounded or slightly tapered, rounded lips. Mouth diameters 22 to 30 cm.

Body wall thickness: Range 0.4–1.0 cm. Majority 0.6 to 0.7 cm.

Body diameter: Estimated from sherd curvatures to range from 32 to 34 cm.

Base: Gently rounded, slightly thickened.

Shape: Large round body of a pot form with incurving and/or inslanting walls forming an orifice of a smaller diameter than the body dimensions.

ALBEMARLE SIMPLE STAMPED

(Pl. 6, *a–f*)

Paste: Same as Albemarle Plain.

Surface:

Color: Same as Albemarle Plain.

Treatment:

Exterior: Paddled with two kinds of paddle.

(1) Majority beaten with a paddle wrapped with smooth thongs or roots (see Griffin's and Sears' 1950 type description of Mossy Oak Simple Stamped) producing a close pattern of smooth ridges and grooves, usually overlapping.

(2) Grooved paddle with faint grooves cut out, producing a pattern on the wet clay with the ridges usually 2 mm. wide and the grooves 2 to 4 mm. in width. Usually paddled once and not overlapping; impression very faint. Not a common technique.

Decoration: The paddling might be called a decoration, but since no consistency of pattern seems to exist it appears better to classify it as a surface treatment. On a few sherds fingertip punches are placed on the exterior rim surface.

Form:

Rim and lip: Rounded or flat lip, slightly thickened on the exterior, forming a short vertical or slightly insloping rim. Mouth diameters range from 24 to 32 cm.

Body wall thickness: Range 0.4 to 1.0 cm. Majority 0.6 to 0.7 cm.

Body diameter: Estimated from sherds, 26 to 36 cm.
Base: Rounded.
Shape: Reconstructed from sherds as a round, globular body with a short vertical or slightly insloping rim, best known as a pot form.

ALBEMARLE SCRAPED

(Pl. 6, *h–k*)

PASTE: Same as Albemarle Plain.
SURFACE:
Color: Same as Albemarle Plain.
Treatment: Usually only the exterior is scraped with the interior smoothed. In a few cases both surfaces have the same treatment. Scraped with some sort of tool with a very irregular edge, when the clay was very wet. The irregular edge of the scraper leaves uneven channels and the scrapings did not impress very clearly, either in single strokes or sometimes overlapping and changing directions. In all cases the workmanship is very poor.
Decoration: None.
FORM:
Rim and lip: Flat or rounded lip on a short vertical or slightly incurved rim. Mouth diameters 26 to 32 cm.
Body wall thickness: Range 0.4 to 1.0 cm. Majority 0.6 to 0.7 cm.
Body diameter: Estimated from sherds, 25 to 36 cm.
Base: Rounded.
Shape: Round bodied pot form with short vertical or slightly insloping rim and orifice smaller than greatest body diameter.

CHICKAHOMINY SERIES

The Chickahominy Series consists of a group of pottery types on a ware typically light tan to gray-tan, with a fine, compact texture, crushed shell temper (leaching sometimes leaves flat holes), and with certain distinctive rim and vessel shapes (fig. 4). In some ways this series is closely related to the Townsend Series (Blaker, 1950) of Maryland, a point to be discussed later in the report.

CHICKAHOMINY FABRIC IMPRESSED

(Pl. 7, *a–i*)

PASTE:
Method of manufacture: Coiling.
Temper: Finely crushed and well pulverized shell (where identifiable, mussel, scallop, and oyster in order of preference), forming over 25 percent of the paste mixture. Depending on the soil conditions the shell temper has leached badly, often identifiable only by fine, flat holes. Because such a large amount of the solid matter of the paste has dissolved, these sherds are often identified by their light weight. Only sand in the paste is that occurring naturally in the clay.
Texture: Very soft, clayey feel with very little sand in the paste.
Color: Light tan to a light creamy tan sometimes ranging into orange-tan or gray-tan throughout with many sherds zoned with a wide gray core.

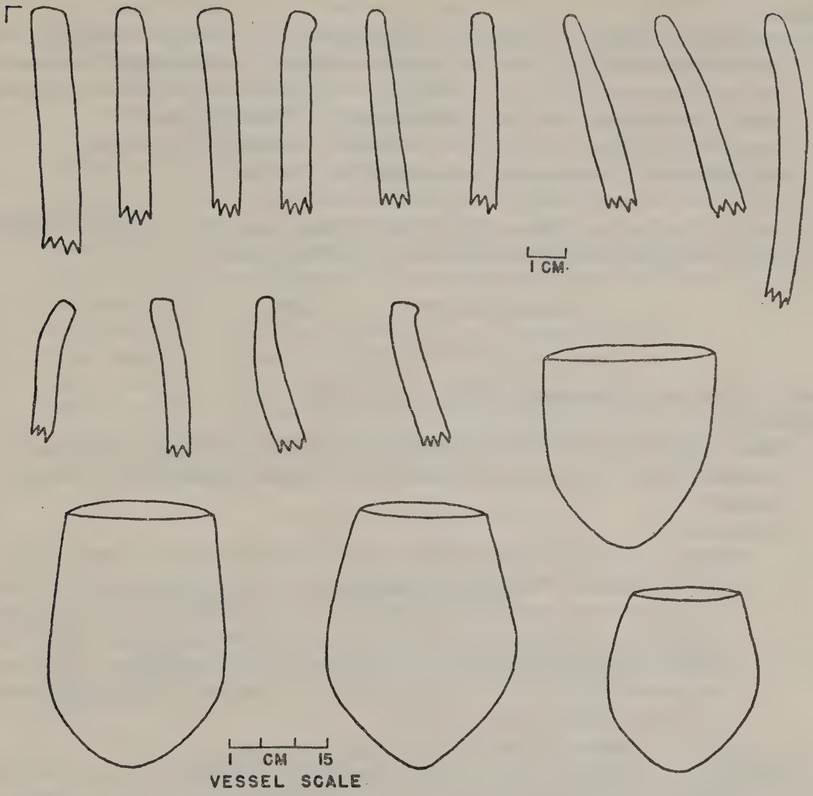

FIGURE 4.—Chickahominy Pottery Series: Typical rim profiles and vessel shapes. Interiors of rims to the left.

Firing: Oxidized, but poorly controlled, ranging from complete firing to incomplete with a gray core and surfaces. Fire clouding present.

Hardness: Soft, 2.

SURFACE:

Color: Light tan to orange-tan to gray-tan on both surfaces. 25 percent of sherd interior a gray hue.

Treatment:

Exterior: Softness of paste permitted erosion to erase the distinct features; hence fabric impressions difficult to distinguish. Majority impressed with a close weft and fine to medium warp fabric suggestive of plaited or twined fabric. All the impressions are horizontal or slightly diagonal to the rim, with no overlapping. A few were lightly impressed with a closely woven simple plaited fabric.

Interior: Smoothed and fairly even, with occasional scraping or brushing.

Decoration: Typically none; occasionally a few nicks along the lip or rim exterior. A few sherds impressed vertically on the inner lip with the same close weft, fine to medium warp fabric as the exterior; in all cases limited to the recurved rims.

FORM:

Rim and lip: Flat top lip with rounded edges, or rounded with the rim either incurved, inslanted, or slightly recurved. An occasional rim has a slight thickening on the exterior formed by extrusion or pinching of the clay. Mouth diameters 14 to 30 cm., majority 24 to 26 cm.

Body wall thickness: Range 0.4 to 1.0 cm. Majority 0.5 to 0.6 cm.

Body diameter: Curvatures from sherds, 24 to 36 cm.

Base: Rounded and subconoidal, some conoidal.

Shape: Medium pot forms with rounded bases and either inslanting sides with a slightly constricted orifice or a recurved rim.

CHICKAHOMINY CORD MARKED

(Pl. 8, *a–e*)

PASTE: Same as Chickahominy Fabric Impressed.

SURFACE:

Color: Light tan to gray-tan to orange-tan on both surfaces. 25 percent of sherds gray on the interior. Each sherd shows considerable color variation.

Treatment:

Exterior: Beaten with a paddle wrapped with medium to coarse, two-strand, double-twisted cords, measuring 1 to 2 mm. in diameter. Impressions deep, made when clay fairly wet; either overlapping and crisscross or parallel cord marks from a single paddling. Majority paddled diagonal to the rim. Typically the lip is smoothed, sometimes extending 1 cm. on the exterior, but on a few the corded paddle was impressed lightly across the lip.

Interior: Smoothed and even or slightly scraped.

Decoration: Usually none; some finger-pinched along the rim or an occasional cord-wrapped-dowel impression either on the lip or on the exterior.

FORM:

Rim and lip: Flat top with rounded edges, rounded or with slight thickening or extrusions on the exterior. Rims vary from straight sides with either vertical or slightly inslanting rims to incurved rims; rarely recurved. Mouth diameters 22 to 32 cm., majority 26 to 28 cm.

Body wall thickness: Range 0.5 to 1.3 cm. Majority 0.6 to 0.7 cm.

Body diameter: Range 20 to 36 cm.

Base: Rounded to subconoidal, with a few conoidal; slightly thickened.

Shape: Medium to large pot forms with straight to inward slanting walls forming an orifice smaller than the body diameter.

POTTS NET IMPRESSED AND ROUGHENED

(Pl. 8, *f–i*)

PASTE: Same as Chickahominy Fabric Impressed except some admixed with sand.

SURFACE:

Color: Light tan to gray-tan to orange-tan on both surfaces. 25 percent of sherds a gray on interior, even though light tan on the exterior.

Treatment:

Exterior: 10 percent impressed clearly and distinctly with a square-mesh, knotted net, 0.5 to 1.0 cm. square; no overlapping. Rest roughened with a net wrapped around the hand or a paddle, creating a haphazard and overlapping pattern of knots. Both techniques applied when clay fairly wet, leaving deep impressions. Sometimes both techniques are found on the same vessel.

Interior: Typically, smoothed and even; some combed, either parallel or crisscrossing striations.

Decoration: Usually none. Occasionally a nicked lip made with either a sharp, thin stick or a rounded dowel.

FORM:

Rim and lip: Flat top, tapered to a round point, or rounded lip. Rims vary from slightly outcurved to vertical, straight sided, or incurved. Mouth diameters 22 to 30 cm.

Body wall thickness: Range 0.6 to 1.3 cm. Majority 0.7 cm.

Body diameter: From sherd curvatures, 26 to 28 cm.

Base: Rounded, subconoidal, a few conoidal.

Shape: Majority a straight-sided or slightly outslanted or outcurved pot form with an orifice generally larger than the body diameters. A few pot forms with a slightly constricted mouth.

ROANOKE SIMPLE STAMPED

(Pl. 9, *a–e*)

PASTE: Same as Chickahominy Fabric Impressed.

SURFACE:

Color: Light tan to gray-tan or both surfaces with 25 percent of sherds gray on the interior even though tan on the exterior.

Treatment:

Exterior:

(1) Thong- or root-wrapped paddle leaving smooth impressions in a crisscross and overlapping pattern from haphazard indiscriminate paddling. Impressions clear and distinct, usually 1 mm. deep.

(2) Less frequently paddled with a grooved paddle, ridges and grooves parallel, 2 to 3 mm. wide.

Interior: Typically smooth and fairly even.

Decoration: Usually none. Sometimes a smooth dowel impressed across the lip or narrow gashes on the inner lip.

FORM:

Rim and lip: Flat top with rounded edges, tapered to a rounded point, rounded, with an occasional exterior lip thickening. Rims are straight sided, slanting inward or outward, or incurving slightly, a few recurved. Mouth diameters 24 to 30 cm.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.6 cm.

Body diameter: Range 20 to 30 cm.

Base: Rounded to subconoidal.

Shape: Pot forms with either a slightly flaring or a constricted orifice.

SUSSEX PLAIN

(Pl. 9, *j*)

PASTE: Same as Chickahominy Fabric Impressed.

SURFACE:

Color: Light tan to gray-tan on both surfaces with 25 percent of sherds gray on the interior even though light tan on the exterior.

Treatment:

Exterior: Smoothed and plain, fairly even.

Interior: Smoothed and even.

Decoration: Typically none. Sometimes nicks across the lip, or a few incised clearcut, sharp lines in crisscross or parallel pattern.

FORM:

Rim and lip: Flat top with rounded edges, rounded, tapered to a rounded point. Some thickened with a slight extrusion on exterior lip. Rim outcurved, or straight sided, sloping inward to a constricted mouth. Some recurved. One rim with an irregularly shaped nubbin 1.5 cm. long protruding from body wall as if a handle. Mouth diameters 16 to 32 cm., majority 24 to 26 cm.

Body wall thickness: Range 0.4 to 1.0 cm. Majority 0.6 cm.

Body diameter: Range 20 to 34 cm.

Base: Rounded to subconoidal.

Shape: Pot forms with either slightly flaring sides or constricted orifice.

POTTS SCRAPED

(Pl. 9, *k*, *l*)

PASTE: Same as Chickahominy Fabric Impressed.

SURFACE:

Color: Light tan to gray-tan on both surfaces, with 25 percent of sherds gray on the interior even though light tan on the exterior.

Treatment:

Exterior: Scraped with a tool, such as a curved gourd or bark scraper, leaving uneven striations; not brushed with a bunch of twigs.

Interior: Smoothed and fairly even.

Decoration: Typically none. Inner lip sometimes impressed diagonally with a thin sharp stick, leaving small gashes or nicks.

FORM:

Rim and lip: Irregular but tends to be rounded or round pointed with a few flat topped with round edges. Rims typically incurved with several recurved. Mouth diameters 16 to 26 cm.

Body wall thickness: Range 0.4 to 1.0 cm. Majority 0.5 to 0.6 cm.

Body diameter: Range 20 to 32 cm.

Base: Rounded to subconoidal.

Shape: Pot forms with constricted orifices.

POTTS CORD-WRAPPED DOWEL

(Pl. 9, *f–i*)

PASTE: Same as Chickahominy Fabric Impressed.

SURFACE:

Color: Light tan on both surfaces.

Treatment:

Exterior: Plain, fairly even and smoothed.

Interior: Smoothed and even.

Decoration: Impressed with a cord-wrapped dowel in parallel lines, zoned rectangles, triangles, diagonal lines. Impressions distinct, 1 mm. deep, 2 mm. wide. Occasionally, rim is nicked.

FORM:

Rim and lip: Tapered to a thick, flat top with rounded edges, rim curving slightly outward.

Body wall thickness: 0.5 to 0.6 cm.
Body diameter: 26 to 28 cm.
Base: No sherds; probably rounded or subconoidal, as is typical of the Chickahominy Series.
Shape: Probably a pot form with slightly outsloping sidewalls.

CLARKSVILLE SERIES

The Clarksville Series consists of a group of pottery types on a ware typically gray-tan to gray-orange, fired in a poorly controlled, oxidoreducing atmosphere, with a sandy to gritty texture, sand temper ranging from fine to medium particles, but never reaching fine gravel, and with distinct rim and vessel shapes (fig. 5).

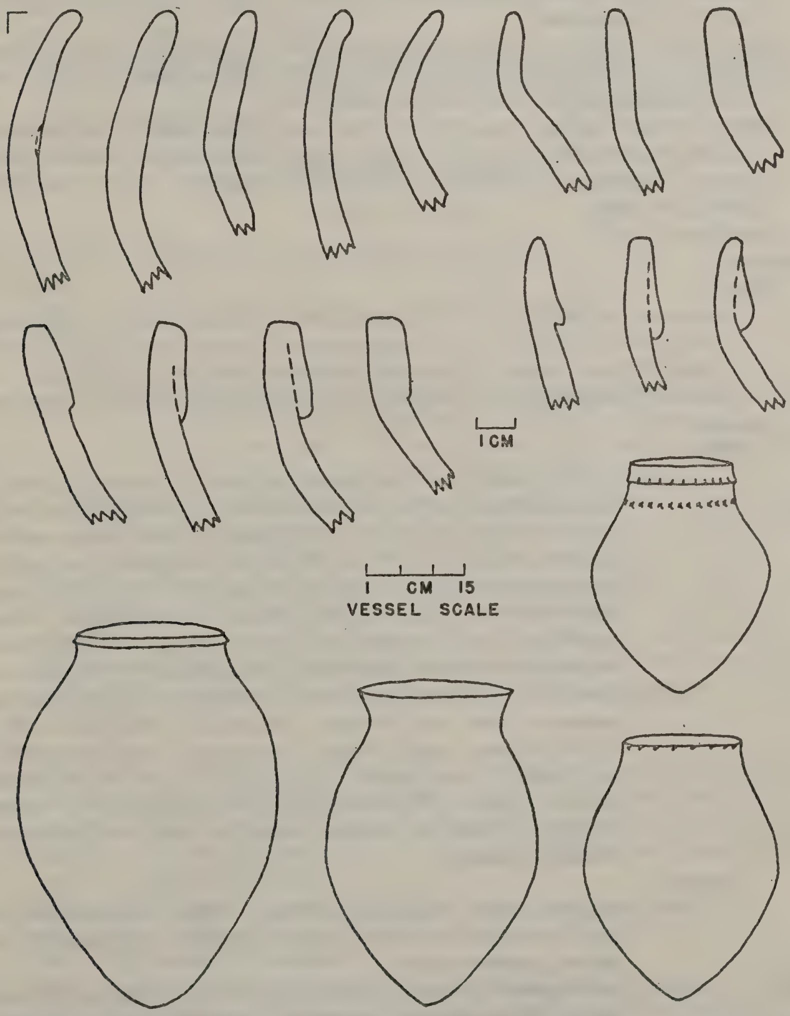

Figure 5.—Clarksville Pottery Series: Typical rim profiles and vessel shapes. Interiors of rims to the left.

CLARKSVILLE NET AND FABRIC ROUGHENED

(Pls. 10, *a–i;* 11)

PASTE:

Method of manufacture: Coiling; distinct fracture planes; a few suggest overlapping of the coils.

Temper: Medium fine to coarse sand, but not approaching the gravel of the Prince George Series. Originally, an attempt was made to separate the fine sand from the coarser sand, but no definite criteria could be defined and there were no other associated differences. Quantity of temper high, about 25 percent of mixture, giving paste a very sandy texture. Occurrence of fine mica particles in majority of sherds appears to be a local feature of the clay rather than a conscious admixture.

Texture: Porous, granular, and sandy. Temper and clay mixture ranges from a compact fine sand mixture to a loose, coarse, noncompact mixture with larger particles.

Color: Only a few tan to orange-tan throughout; majority a gray to gray-black; or if the exterior of sherd tan, this color extends inward 2 to 3 mm., then sharply changes to a gray-black core.

Firing: Oxidoreducing atmosphere with many fire clouds on exterior, intense fire blackened on the interior, suggesting firing of vessels upside down. Variation of color on each sherd suggests a poorly controlled method of firing.

Hardness: 3 to 3.5.

SURFACE:

Color:

Exterior: Majority gray to gray-tan. Regardless of the few that range into red-tan, light tan, or orange-tan, all have a grayish hue. This gray to black is one of the most diagnostic features of the type.

Interior: Majority a hue of gray to gray-black; occasionally a few tan.

Treatment:

Exterior:

(1) Most frequently, a roughened surface by paddling with a crumpled fabric or net in the hand or a paddle wrapped with knotted net, creating an overlapping, coarse, rough surface often with a ridged effect. Often this roughened material is difficult to distinguish from the so-called "corn-cob roughened" material except for the presence of the knots. Sometimes the entire surface is lightly swiped-over afterward, semierasing or smoothing out the roughened net impressions.

(2) Square mesh, knotted net fabric with knots and fine cord impressions clear and distinct. Majority of the mesh 0.6 to 0.7 cm. square; range from 0.5 to 1.0 cm. Knot impressions are usually 2 mm. deep; cords all fine, 1 mm. or less, except in a few cases. No overlapping; single impressions typical. Sometimes combined on same vessel or sherd with the roughening treatment.

Interior:

(1) Smoothed, fairly regular and even. Often the interiors are filled with carbonized food particles which impregnated the porous, granular paste.

(2) Less frequently combed with parallel or crisscrossing striations. There are no unusual features or shapes associated with the various interior treatments, even though the data were collected according to these subdivisions.

Decoration: Lip or collar finger-pinched, a most diagnostic trait of the entire Clarksville Series. Occasionally, punctations, gashes, or notches made with a sharp or round-pointed stick are on the exterior of the folded-over rim, especially on the lower edge.

Form:

Rim and lip: Usually a folded-over or added coil on the exterior. Considerable variation in size and width of coil or folding, ranging from 1.5 to 2.5 cm., forming a rim from 1 to 1.5 cm. thick. This style usually forms a short, vertical or slightly recurved rim with a round or flat top, round edged lip. The other rim forms follow the same profile curvatures and lip features except there is no folding over or coil thickening. Nicking or finger pinching on the lip common. Mouth diameters range from 20 to 32 cm.; majority 26 to 28 cm.

Body wall thickness: Range 0.6 to 1.2 cm. Majority 0.7 to 0.8 cm.

Body diameter: Range 36 to 40 cm.

Base: Conoidal to subconoidal.

Shape: Medium to large; round to globular, short-collared jar with sidewalls incurving to a constricted collar and thus forming either a vertical or slightly recurved rim.

CLARKSVILLE FABRIC IMPRESSED

(Pls. 10, *j*, *m*; 11)

Paste: Same as Clarksville Net and Fabric Roughened.

Surface:

Color: Same as Clarksville Net and Fabric Roughened.

Treatment:

Exterior:

(1) Impressed with a simple twine, coarse, open-woven fabric, with the weft cords measuring 0.5 to 1.0 cm. apart.

(2) A few impressed with coarse to medium warp, medium weft, fairly tightly woven fabric. Warp width 0.6 cm.

Interior: Majority smoothed, even and regular, finger swipings sometimes present. About one-third combed with parallel, regular striations plainly visible; occasionally crisscrossed and overlapped.

Decoration: Finger pinchings or fingertip impressions around the neck, on the lip, or on the lower edge of folded rim. Occasionally, gashes or nicks. Punctations or shallow incisions made with a small, round stick on the folded-over rim are quite common from several sites representing the Clarksville Series, suggesting a possible regional decorative variation within the series.

Form:

Rim and lip: Folded-over or added coil on the exterior, varying in size from 1.5 to 2.5 cm. in width and 1 to 1.5 cm. thick; or direct rims with no thickening. Lip rounded or flat topped with rounded edges. Rim profile either gently incurved vertical or recurved. Mouth diameters range from 20 to 34 cm., majority 26 to 28 cm.

Body wall thickness: Range 0.6 to 1.2 cm. Majority 0.7 to 0.8 cm.

Body diameter: Range 32 to 40 cm.

Base: Subconoidal to conoidal.

Shape: Medium to large round-bodied, short-collared jar with body walls incurving to a constricted neck with either a vertical or recurved rim.

CLARKSVILLE CORD MARKED

(Pl. 10, *k*, *l*)

PASTE: Same as Clarksville Net and Fabric Roughened.

SURFACE:

Color: Same as Clarksville Net and Fabric Roughened.

Treatment:

Exterior: Impressed with a paddle wrapped closely with medium coarse to coarse, 1.5 to 2 mm. in diameter, two-strand, simple twisted cord with either a single, nonoverlapping stroke slightly diagonal or vertical to the rim or crisscrossing and overlapping on 25 percent of the surfaces. A few suggest the paddle was wrapped with a coarse, 3 to 4 mm. in diameter, braided cord, making parallel impressions with each strand spaced from 2 to 3 mm. apart. Sometimes the cord marking extends to lip.

Interior: Majority smoothed; a few combed.

Decoration: Occasionally, a finger-pinched rim or collar, but not as frequent as on the net and fabric impressed types of the series. Several sherds show a single cord impression arranged in horizontal lines with short diagonal cross lines on the exterior rim. The most common decorative technique of this type is a series of punctations or deep diagonal gashes made with the blunt end of a thin round stick. Usually these decorations are in the lower edge of the folded-over rim or as diagonal gashes in the central to lower part of the exterior rim. They vary in depth from 1 to 3 mm., averaging 2 mm. in width, with some of the circular punctations reaching 4 to 5 mm. in diameter.

FORM:

Rim and lip: Usually a folded-over or added coil on exterior with considerable variation in size (1.5 to 3.0 cm. wide) and thickness (1 to 1.5 cm.). Lip either flat-topped with rounded edges or rounded; rim either incurved slightly or recurved. Mouth diameters range from 20 to 34 cm.; majority 26 to 28 cm.

Body wall thickness: Range 0.6 to 1.2 cm. Majority 0.7 to 0.8 cm.

Body diameter: Range 34 to 40 cm.

Base: Conoidal to subconoidal.

Shape: Medium to large round-bodied, short-collared jars with a constricted orifice from either directly incurving side walls or a slightly recurved rim.

CLARKSVILLE PLAIN

PASTE: Same as Clarksville Net and Fabric Roughened.

SURFACE:

Color: Same as Clarksville Net and Fabric Roughened.

Treatment:

Exterior: Smoothed by hand, not slick, only 25 percent smooth to feel, others rough, irregular, and sandy.

Interior: Smoothed with only moderately regular surfaces; 15 percent combed in a parallel or crisscross, overlapping pattern.

Decoration: Typically none; occasionally a few nicks or diagonal gashes on the top or exterior edge of lip.

FORM:

Rim and lip: Rounded or flat-topped with rounded edges, sometimes with a thin coil thickening the exterior. Rims almost vertical; slightly outcurved with a recurved rim rather rare. Mouth diameters range from 6 to 28 cm.

Body wall thickness: Range 0.4 to 1.2 cm. Majority 0.6 to 0.7 cm.

Body diameter: 12 to 30 cm.; miniature vessels usually crude.

Base: Conoidal to subconoidal.

Shape: Small miniature jars or cups to pot forms with constricted orifices.

CLARKSVILLE COMBED

PASTE: Same as Clarksville Net and Fabric Roughened.

SURFACE:

Color: Same as Clarksville Net and Fabric Roughened.

Treatment:

Exterior: 90 percent of surfaces scraped with a comb of some sort having distinct nicks or teeth leaving ridges and grooves measuring 1–3 mm. in width and averaging 0.5–1.0 mm. in depth. Crisscrossing or overlapping in a general diagonal direction around the body of the vessel the most common, although parallel combings sometimes present. Other surfaces appear as if rubbed or scraped with a coarse pottery, gourd, or bark scraper without teeth, leaving a rough surface. A few suggest brushing with a bundle of twigs, but very rarely.

Interior: Combed or scraped as the exterior in 75 percent of the cases; rest smooth with varying degrees of evenness and regularity.

Decoration: Usually none but sometimes fingertip pinches or diagonal gashes or nicks along the exterior edge of the lip.

FORM:

Rim and lip: Rounded or flat-topped with round edges; typically not thickened or folded-over; occasionally an everted lip. Rim usually prominently recurved from strongly incurved body walls. Mouth diameters 10 to 34 cm.; majority 26 to 28 cm.

Body wall thickness: Range 0.5–1.0 cm. Majority 0.7 cm.

Body diameter: Range 26 to 32 cm. Majority around 28 cm.

Base: None found, but probably the combings did not extend to this part of the body, hence conoidal to subconoidal suggested from rest of types within the series.

Shape: Medium, round-bodied jars with short necks and prominent recurved rims.

CLARKSVILLE CORN-COB ROUGHENED

PASTE: Same as Clarksville Net and Fabric Roughened.

SURFACE:

Color: Same as Clarksville Net and Fabric Roughened.

Treatment:

Exterior: Roughened with a corncob leaving an extremely rough, coarse, uneven, and scuffed surface where only occasionally the actual imprint of the cob, as if rolled, can be identified. Sometimes hard to distinguish from the Net Roughened type. Purpose of treatment seemed to be purely one of roughening the surface. Holmes (1903) called this "Fingernail Rolled," but his design can be duplicated exactly with a corncob, an impossibility with the fingernail.

Interior: Combed or smoothed with moderately regular to even surfaces.

Decoration: Typically none; rim nicks or gashes or finger pinchings occasionally.

FORM:

Rim and lip: Rounded or flat topped with round lips. Incurved or slightly recurved. Mouth diameter 28 cm.

Body wall thickness: 0.6–0.8 cm.
Body diameters: Insufficient evidence.
Base: Conoidal to subconoidal.
Shape: Insufficient evidence, but probably the typical round-bodied jar with short, recurved rim so common in the series.

MARCEY CREEK SERIES

The Marcey Creek Series is composed of a group of pottery types characterized by a light-tan to red-brown to gray-red color, soft paste, soapy texture and feel, crushed steatite temper, very irregular, uneven, lumpy surfaces and with distinctive vessel and rim shapes (fig. 6). Sometimes this ware has been called "Washington Steatite-tempered" but the name was without formal description and was often applied loosely. Then Marcey Creek Plain was originally established by publication and description by Manson, but his materials were limited to one site only (Manson, 1948). Since this type has proved diagnostic throughout Virginia, his original Marcey Creek Plain is expanded slightly to include variations of impressions of the flat base, such as matting or net impressions, even though the surface treatment of the vessel can still be considered plain. Slattery's steatite-tempered material from Selden Island in the Potomac River varies slightly in surface treatment from Marcey Creek Plain (Slattery, 1946); hence, by taking his data and placing it in standard descriptive pottery-type form, a series of steatite-tempered pottery is established. It is pertinent to mention that Slattery's net-impressed material and his twined-matting impressions appear always to be on flat sherds with no curvature, suggesting that instead of body sherds they are bases. Under

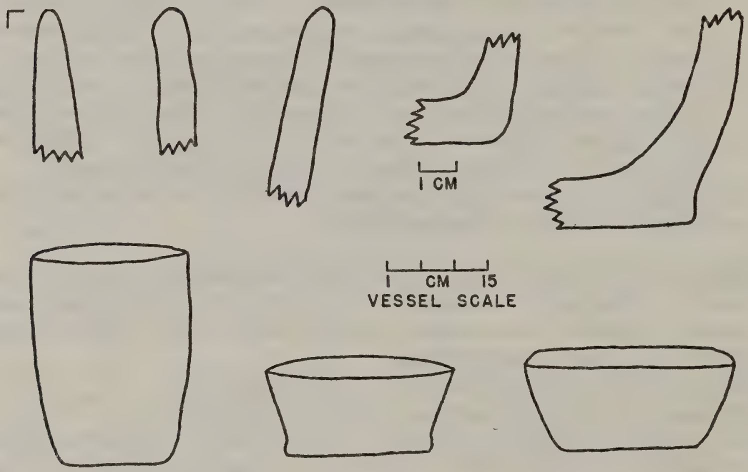

FIGURE 6.—Marcey Creek Pottery Series: Typical rim profiles and vessel shapes. Interior of rims to the left.

these circumstances, this variation is considered as the basal treatment of Marcey Creek Plain rather than an entirely new pottery type, as is demonstrated by the Marcey Creek materials and those found by the author throughout Virginia. To avoid confusion of names it should be noted that Manson's Marcey Creek Cord Marked is not a part of this series, for the temper is not crushed steatite.

MARCEY CREEK PLAIN

(Pl. 12, *a–k*)

PASTE:

Method of manufacture: Hand modeling or patching or kneading; a few suggest coiling.

Temper: Crushed steatite ranging in size from fine powder to 1 cm. hunks and coarse pieces; 25 to 50 percent of paste mixture.

Texture: Soft, soapy feel from the steatite. Coarse particles often lumped together from poor kneading of paste. Easy to break, edges rub off.

Color: Buff to tan or a reddish brown with specks of steel gray; many zoned with a gray to gray-black core.

Firing: Oxidized firing, poorly controlled, usually incomplete. Uneven firing often produces a mottled effect.

Hardness: Very soft, 1.5 to 2.

SURFACE:

Color:

Exterior: Dull gray, buff, tan, orange-tan, red-brown, and reddish hues the most common.

Interior: Same as exterior except many a dark, dirty brown.

Treatment: Both surfaces smoothed by hand only, rough to feel, very uneven and irregular with lumps of temper protruding through paste. The unevenness of surfaces is one of the most diagnostic features of the type. The flat bases are either plain or impressed with a coarse matting, consisting of 3 mm. wide, flat splint-warps held together by finely twisted weft-cords, spaced 0.5 to 1.2 cm. apart. Sometimes the base is impressed with knotted, square-mesh net, averaging 0.8 to 1.0 cm. in mesh.

Decoration: Occasionally a nicked rim.

FORM:

Rim and lip: Fairly thin lips (averaging 0.5 cm.) compared to the body-wall thickness, tapering from a thick sidewall to a rounded or round-point lip. Rims either vertical or slightly outsloping.

Appendages: Large, oval or ear-shaped lugs or nodes, from 2 to 3 cm. in diameter and extending 1 to 2 cm. from the surface, protrude outward either directly from the lip or slightly below it. In shape, the node or handle is a direct copy of the steatite bowl handle.

Body wall thickness: Range 0.5 to 1.5 cm. with the thickness where sidewall joins the base, sometimes reaching 5 cm.

Body diameter: Sherd fragments suggest oval or rectanguloid vessels; estimates impossible on fragments only.

Base: Flat with heel protrusion, thickened slightly, irregular with either a plain or a mat-impressed exterior surface. Usually thicker than sidewalls by 0.5 to 0.8 cm.

Shape: Sherd samples suggest a direct copy of the typical steatite vessels which are oval or rectanguloid bowls, with flat bases, irregular surfaces, curved to straight sides, with occasional handles at the ends.

SELDEN ISLAND CORD MARKED

(Pl. 12, *l–m*)

Paste: Same as Marcey Creek Plain.

Surface:

Color: Same as Marcey Creek Plain; sometimes tends to be more rusty brown.

Treatment:

Exterior: Impressed with a cord-wrapped paddle in a haphazard, overlapping, crisscrossing or diagonal pattern. Base occasionally has net or mat impressions, resulting from the vessel sitting on these materials while under construction.

Interior: Smoothed but lumpy, irregular and uneven.

Decoration: Typically none. Sometimes a nicked lip.

Form:

Rim and lip: Appendages, and body wall thickness same as Marcey Creek Plain.

Body diameter: Range 10 to 35 cm., estimated from sherds.

Base: Flat with heel protrusion, thickened slightly, irregular with plain, net- or mat-impressed exterior surface. Usually thicker than sidewalls.

Shape: (1) Tall, cylindrical pot forms. (2) Oval or rectanguloid bowls with flat bases, irregular surfaces, curved to straight sides, sometimes with lugs at the ends.

NEW RIVER SERIES

The New River Series is a group of pottery types on a ware characterized by a gray-tan surface, incompletely fired in an oxidoreduc-

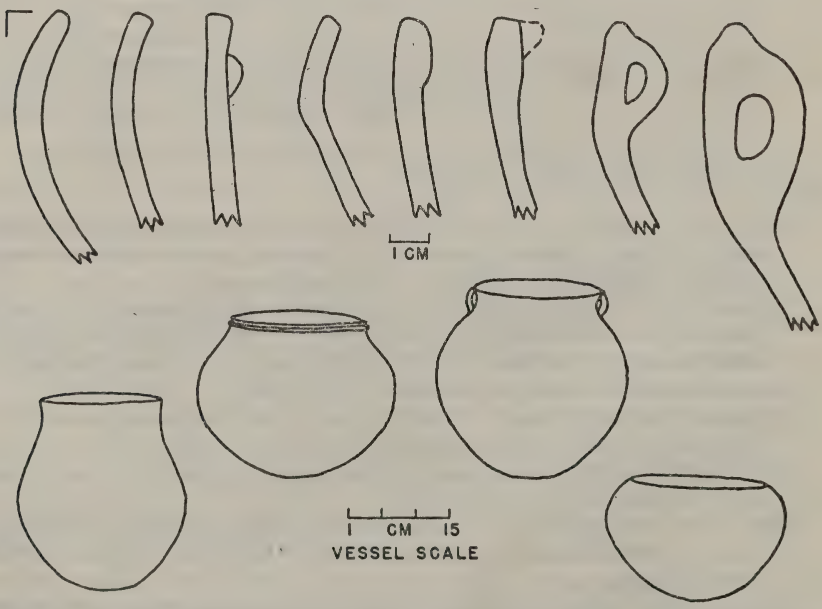

Figure 7.—New River Pottery Series: Typical rim profiles and vessel shapes. Interiors of rims to the left.

ing atmosphere producing a gray-cored paste, with crushed-shell temper and with certain diagnostic rim and vessel shapes (fig. 7). With the exception of temper this series is quite comparable to the Radford Series. The following pottery types are included in the series.

NEW RIVER KNOT ROUGHENED AND NET IMPRESSED

(Pl. 13, *i–k*)

PASTE:

Method of manufacture: Irregular cleavage, coil lines not easily distinguished. Some coiled, but the majority suggest modeling or patchings in part evident by the irregular body wall thickness of each sherd.

Temper: Crushed shell with particles ranging from fine flakes to large hunks 6 to 8 mm. in length. Flaky particles usually oriented parallel to the vessel walls and fairly well distributed throughout the paste mixture. Some leaching.

Texture: Paste flaky and clayey; fairly hard to break; medium fine texture; fine particles of temper often exposed on the surfaces.

Color: Gray to gray-black core of 1 to 3 mm. wide with a lighter gray-tan exterior and interior; a few gray to gray-black entirely.

Firing: Incomplete in a poorly controlled oxidoreducing atmosphere.

Hardness: 2.5 to 3.

SURFACE:

Color:

Exterior: Majority a dull gray-tan with some either gray-black or lighter tan.

Interior: A grayish hue predominates; either gray-tan or gray-black.

Treatment:

Exterior: Majority paddled or rubbed with a knotted net, leaving a coarse, rough surface with impressions of knots and a few of the mesh lines. Usually the mesh of the net is obliterated, suggesting roughening with a crumpled net. Only a few impressed carefully leaving each mesh distinct.

Interior: Smoothed but usually irregular; some scraped on interior leaving striations.

Decoration: Present on about half the rim sherds.

(1) Finger pinchings along the lip, lower edge of the folded-over rim, or along the collar.

(2) Gashes or nicks along the lip, rim, or collar.

FORM:

Rim and lip:

(1) Rounded or flat top lip with rounded edges; rim either recurved or vertical forming a short neck with an orifice smaller than the largest body diameter. Mouth diameter range from 14 to 30 cm.

(2) Sometimes a slightly externally thickened flat or rounded lip. Typically, a short, vertical or slightly recurved rim.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.7–0.8 cm.; however, great variation on each sherd.

Body diameter: Range 24 to 36 cm.

Base: Rounded, usually thickened.

Appendage: Rounded (average diameter 1.5 cm.) loop handles from the lip, or just below the lip, to the shoulder on a large percentage of rim sherds.

In a few cases the handle is the strap type measuring 1.5 to 2 cm. in width. Small protruding nodes, 1 to 1.5 cm. high and sometimes 1.5 cm. base width, are applied either singly or in pairs below the lip.

Shape: Round jars with globular body, short to medium neck, orifice smaller than greatest body diameter, and a recurved or vertical rim.

NEW RIVER CORD MARKED

(Pl. 13, *a–e*)

Paste: Same as New River Knot Roughened and Net Impressed.

Surface:

Color:

Exterior: Majority a dull, gray-tan with some ranging toward gray-black or light tan.

Interior: A grayish hue predominates, ranging to gray-tan or gray-black.

Treatment:

Exterior: Haphazardly beaten with a cord-wrapped paddle forming parallel or crisscrossing patterns. Nonoverlapping, parallel impressions, the most common. Cords range from 1.5 to 2.5 mm. in diameter with the impressions usually shallow and indistinct due to the leather-hard condition of the clay when paddled. Sometimes the cord markings do not extend to the lip, but the lip edge and 1 to 2 cm. of the exterior is smoothed.

Interior: Hand smoothed but uneven and irregular; a few scraped.

Decoration: Finger pinchings, gashes or nicks along the lip, rim exterior or neck on about half the rim sherds.

Form:

Rim and lip: Rims quite irregular and uneven.

(1) Round, round-pointed or flat top lip with rounded edges with either a recurved or vertical rim. A few incurved slightly. Mouth diameters 24 to 32 cm.

(2) Sometimes a slightly external thickened lip. Rim typically vertical or slightly recurved, forming a short neck. Mouth diameters 26 to 34 cm.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.7–0.8 cm.

Body diameter: Range 24 to 36 cm.

Base: Rounded, usually slightly thickened.

Appendage: Rounded, loop handles from the lip, or just below the lip, to the shoulder on a large percentage of sherds. Occasionally, a strap handle, measuring 1.5 to 2 cm. wide in central portion, expanding slightly at points of juncture with exterior surfaces. Small nodes, single or paired, 1.5 to 2 cm. high, sometimes applied just below the lip.

Shape: Round jar with a globular body; orifice smaller than the body diameter, recurved, slightly incurved or vertical rim.

NEW RIVER FABRIC IMPRESSED

Paste: Same as New River Knot Roughened and Net Impressed.

Surface:

Color:

Exterior: Majority a dull, dirty, gray-tan with some either gray-black or a lighter tan.

Interior: A grayish hue predominates; either gray-tan or gray-black.

Treatment:

Exterior: Impressed with a fabric of the plain plaited or twined variety but in most cases impossible to distinguish the two. Often the fabric has been applied several times in one area, as if wrapped on a paddle or around the hand, defacing the individual impressions. Occasionally, surface swiped-over afterward, obliterating in part the fabric impressions.

Interior: Smoothed but usually uneven and irregular; a few scraped, leaving faint striations.

Decoration: About half the sherds finger pinched, nicked, or gashed along the neck or rim exterior.

FORM:

Rim and lip:

(1) Rounded or flat top lip with round edges; recurved or vertical rim forming a short neck. Mouth diameters 22 to 28 cm.

(2) Sometimes a slightly externally thickened flat or rounded lip. Usually uneven and crudely applied. Typically, a short, vertical or slightly recurved rim. Mouth diameters range from 20 to 32 cm.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.7 to 0.8 cm.

Body diameter: Range 24 to 36 cm.

Base: Rounded, usually slightly thickened.

Appendage: Sometimes a rounded loop handle from lip to shoulder.

Shape: Round jar with globular body; orifice smaller than the body diameter and either a recurved, slightly incurved, or vertical rim.

NEW RIVER PLAIN

(Pl. 13, *f–h*)

PASTE: Same as New River Knot Roughened and Net Impressed.

SURFACE:

Color:

Exterior: Majority a dull, dirty gray-tan with some ranging to gray-black or light tan.

Interior: A grayish hue predominates, ranging to gray-tan or gray-black.

Treatment: Both surfaces smoothed-over but still fairly uneven and irregular. Sometimes the surface, especially the interior, is scraped with the striations fairly prominent.

Decoration: None on the few sherds representing the type.

FORM:

Rim and lip:

(1) Rounded lip with either a slightly recurved or vertical rim.

(2) Sometimes a slightly externally thickened lip. Rim typically vertical or slightly recurved with the orifice smaller than the body diameter. Mouth diameters 24 to 32 cm.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 7 to 8 cm.

Body diameter: Range 24 to 36 cm.

Base: Rounded and usually slightly thickened.

Appendage: None found on limited sherd sample but probably the typical handle form of the New River Series.

Shape: Round jar with globular body, orifice smaller than the body diameter, a recurved, slightly incurved, or vertical rim.

A RELATED SHELL-TEMPERED TYPE: KEYSER CORD MARKED

This pottery type was described on the basis of sherds from the Keyser Farm Site (see Manson, MacCord, and Griffin, 1944, pp. 402–405, for complete type description). Some of the sherds are not distinguishable from those of the shell-tempered New River Series; however, others differ mainly in the greater occurrence of lugs and rim protrusions. Since the type is so closely related to the New River Series, but at the same time shows minor variations, it would seem advisable to view this pottery type as a local expression of the North Division of the Allegheny Ceramic Area.

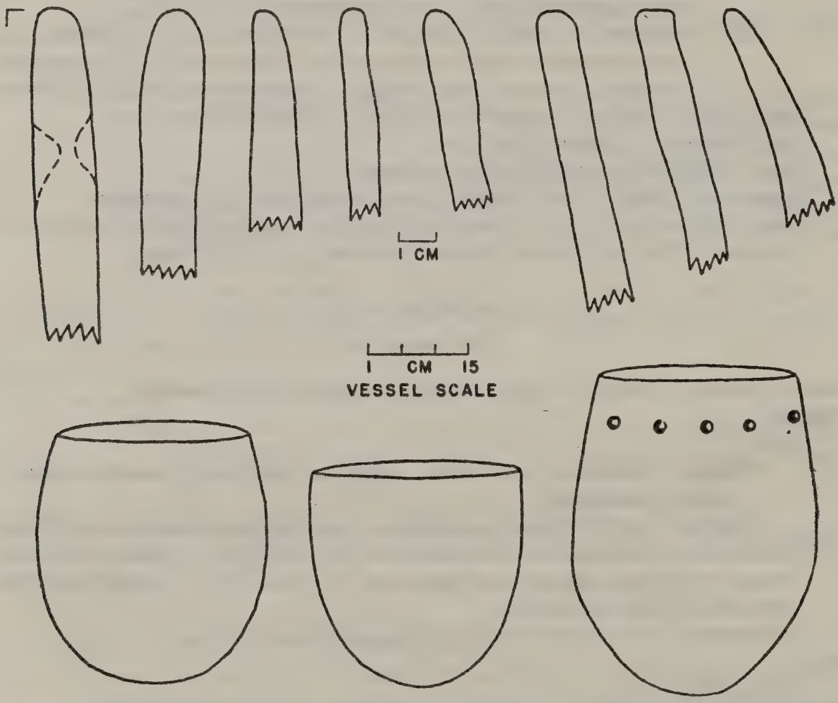

FIGURE 8.—Prince George Pottery Series: Typical rim profiles and vessel shapes. Interiors of rims to the left.

PRINCE GEORGE SERIES

The Prince George Series is a group of pottery types on a ware typically light tan to yellow-tan, fairly completely fired in an oxidizing atmosphere, with coarse temper particles of rounded river pebbles, admixed with sand, and with distinctive rim and vessel shapes (fig. 8). The following pottery types are included in the series.

POTTERY HILL NET IMPRESSED AND ROUGHENED

(Pl. 15, *a–h*)

PASTE:

Method of manufacture: Coiling, cleavage lines very distinct with coils averaging 1 to 1.5 cm. in width.

Temper: A mixture of coarse sand and large waterworn, rounded pebbles or gravel (mostly quartz) ranging from 0.3 to 1.5 cm., and averaging 0.5 to 0.6 cm. The rounded pebbles comprise about 10 percent of the paste mixture and are the diagnostic feature of the paste. Sometimes an occasional crushed or broken rock appears, but its sporadic occurrence can be considered accidental.

Texture: Very pasty, a ropy, lavalike appearance. Poorly compacted around the large hunks of temper with a very uneven distribution of temper particles. Rather hard to break; not crumbly or friable. Crackle lines around the coarse temper.

Color: Typically, the core is an irregular and uneven tannish to reddish tan with occasional streaks of gray to gray-tan. The coarse temper apparently greatly affected the evenness of firing. No regular or distinct zoned color in the core.

Firing: Oxidized, poorly controlled.

Hardness: 2.5 to 3.

SURFACE:

Color:

Exteriors are very uneven and irregularly colored ranging from a light tan to a gray-tan to orange-tan with a few sherds grayish on the exterior from differential firing.

Interiors show the same range except 10 percent of the sherds are gray.

Treatment:

Exterior:

(1) Ten percent are a distinct net impression with the knots and intervening cords of the net clear. Mesh ranges from 0.5 to 1.0 cm. square, no smoothing over.

(2) Roughened with a knotted net by beating the surface with a net-wrapped paddle or hand, creating a haphazard pattern of knots and overlapping mesh.

Interior:

(1) Smoothed over with 70 percent very even. Ten percent irregular and lumpy; this is limited to those with the larger pebbles, 1.5 cm. in diameter.

(2) Ten percent of the sherds combed with a crisscross pattern.

(3) About 10 percent scraped or finger-swiped striations quite evident and not completely erased.

(4) Rarely, net impressed on inner rim.

Decoration: One of the diagnostic features of the type is the finger and thumb pinching reaching over the rim onto the jar shoulder, forming a deep hole or punctation on both surfaces, or merely the finger punchings on the exterior with a nubbin or protrusion on the interior. In all cases the fingertips can be fit into these indentations, and occasionally the fingerprints are distinctly impressed in the clay. In a few cases, a stick or hollow cane has been used to make the punched hole on exterior. These punctations never pierce the vessel wall completely; instead, the clay has been pushed inward, forming a prominent nubbin or protrusion. Occasionally the rim shows fingertip impressions. These decorations do not occur on more than 25 percent of the sherds.

FORM:

Rim and lip: Great variety on each sherd, suggesting less attention to the consistency of rim shape than other details. Range from a flat-topped lip with rounded edges to a rounded lip with either a slight exterior and interior thickening or a slight tapering. Only rarely is the rim the same thickness as the body walls. The great majority of the rims slope inward, or curve toward the orifice. A limited number of the rims assume an almost vertical position from an insloping body wall to form a short neck. Mouth diameters range from 26 to 36 cm.

Body wall thickness: The most variable of all the series with several measurements on each sherd. Range 0.5 to 2.0 cm. Majority 0.8 cm.

Body diameters: Range 28 to 42 cm. with the majority around 34 to 36 cm.

Base: Rounded, occasionally suggesting a sort of rounded platform with the bottom flattened slightly; always thickened. Base thickness always about 0.5 cm. thicker than the body wall.

Shape: Large, elongated pot form sometimes approaching globularity, curving to a rounded base and with an orifice slightly smaller than the widest body diameter.

PRINCE GEORGE FABRIC IMPRESSED

(Pl. 14, *a–d*)

PASTE: Same as Pottery Hill Net Impressed and Roughened except that there are less of the large temper particles and occasionally some of the quartz particles of sand are angular.

SURFACE:

Color: Same as Pottery Hill Net Impressed and Roughened.

Treatment

Exterior: The majority are of an indeterminate pattern with a very close weft and a medium to very narrow warp, but the impressions are so faint and light that any accurate determination, other than fabric impressed is impossible. About 40 percent are a distinct fabric impression made when the clay is wet with a closely packed weft on a heavy wide warp ranging from 0.5 to 1.0 cm. Known in most eastern literature as plain plaited (Griffin and Sears, 1950). Usually applied in nonoverlapping rows horizontal to the rim.

Interiors: Smoothed over but uneven and irregular with some crackle lines around the temper particles. Rarely scraped or finger swiped with the striations clearly visible. On a few sherds the inner lip of the rim is impressed in vertical rows to the rim as compared to the horizontal impressions on the exterior with the same close weft, wide warp fabric as the exterior.

Decoration: Typically none; occasionally the same finger or stick punctations described in detail under Pottery Hill Net Impressed and Roughened.

FORM:

Rim and lip: Great unevenness and irregularity of lips and rims indicating lack of conscious uniformity of rim treatment. Majority a flat-topped, round-edged or rounded lip with a minimum amount of thickening, if any. Rims extend upward to an almost vertical position from insloping sides. A few merely incurve slightly to form an orifice smaller than the body diameter. Mouth diameters range from 22 to 30 cm.

Body wall thickness: Range 0.5 to 1.2 cm. Majority 0.6 to 0.7 cm. Each sherd shows large variability of thickness.

Body diameter: Range from 28 to 32 cm.

Base: Thickened and gently rounded, occasionally suggesting a small flattened surface on the round bottom.

Shape: Medium elongated jars, or globular pot form curving to a low rounded base. Sides either insloping, forming an orifice smaller than the body diameter, or extending upward from the globular waist to form a short vertical rim.

PRINCE GEORGE CORD MARKED

(Pl. 14, *e–h*)

Paste: Same as Pottery Hill Net Impressed and Roughened.

Surface:

Color: Same as Pottery Hill Net Impressed and Roughened.

Treatment:

Exterior: Indistinguishable from Stony Creek Cord Marked, except a few more coarse and medium coarse cords. Deep impressions from a paddle wrapped with medium fine to coarse simple twisted, two-strand cords (averaging 1.0 to 1.5 mm. in diameter). Cords either wrapped tightly or several millimeters apart, usually applied in a crisscrossing pattern over the entire surface. Only 10 percent of cord impressions are without any overlapping. All the impressions are clear and deep, applied when the clay was extremely wet.

Interior: Smoothed, but often uneven and irregular, with crackle lines and lumps around the large temper particles. A few sherds scraped lightly but with the interiors fairly uneven.

Decoration: Typically none; occasionally the same finger or dowel punctations described in detail under Prince George Net Impressed and Roughened, with a rare occurrence of a cord-wrapped-dowel impression along the lip.

Form:

Rim and lip: Very irregular and uneven on each sherd, ranging from rounded to flat top with rounded edges to round-pointed tapered lips. All the rims curve inward slightly or are almost straight, sloping inward toward the orifice. Typically, lips are smoothed over without cord impressions. Mouth diameters range from 26 to 32 cm.

Body wall thickness: Range 0.5 to 1.3 cm. Majority 0.7 cm.

Body diameter: Estimated from sherd curvatures, 26 to 32 cm.

Base: Rounded, always 1 to 2 mm. thicker than the body wall.

Shape: Medium elongated or round-bodied pot form curving to a low, angled, rounded base with almost straight or insloping sides forming an orifice smaller than the greatest body diameter.

PRINCE GEORGE PLAIN

Paste: Same as Pottery Hill Net Impressed and Roughened.

Surface:

Color: Same as Pottery Hill Net Impressed and Roughened.

Treatment: Exterior and interior smoothed with no additional treatment; usually uneven and irregular; crackle lines around the temper particles. In a few cases swiped over and smoothed out fabric impressed surfaces are suggested.

Decoration: None.

Form: Identical in all details to the features of Prince George Cord Marked.

PRINCE GEORGE SCRAPED

Paste: Same as Pottery Hill Net Impressed and Roughened.
Surface:
Color: Same as Pottery Hill Net Impressed and Roughened.
Treatment:
Exterior: Scraped with some sort of a scraper (probably gourd, bark, or wood rather than a potsherd), leaving scratch marks and haphazard striations. Surface irregular and uneven; the scrapings in part appear to be an effort to smooth out the irregularities.
Interior: Either smoothed or lightly scraped but uneven.
Decoration: None.
Form: Identical in all details to the features of Prince George Cord Marked.

PRINCE GEORGE SIMPLE STAMPED

Paste: Same as Pottery Hill Net Impressed and Roughened.
Surface:
Color: Same as Pottery Hill Net Impressed and Roughened.
Treatment:
Exterior: Surface beaten haphazardly with a smooth root- or thong-wrapped paddle. Faint surface impressions, due to paddling when clay leather-hard.
Interiors: Smoothed but uneven; a few scraped.
Decoration: None.
Form: Sample is the smallest of the types in the Prince George Series, but the few sherds suggest the same form features as Prince George Cord Marked.

RADFORD SERIES

The Radford Series is composed of a group of pottery types on a ware characterized by gray to gray-tan color, a gray to black core resulting from incomplete firing in an oxidoreducing fire; crushed limestone temper; and with diagnostic rim and vessel shapes (fig. 9). The following pottery types are included in the series.

RADFORD KNOT ROUGHENED AND NET IMPRESSED

(Pls. 16, *a–j*; 17, *i*)

Paste:
Method of manufacture: Very irregular cleavage, coil lines not easily distinguished. Without any doubt, some coiled; majority suggest hand modeling or patching, as is quite evident from the irregular and uneven body walls.
Temper: Crushed limestone. Angular particles range from small pieces less than 1 mm. up to 5 to 6 mm. hunks. Distribution of temper appears as if all sherds have some large, angular hunks, with the total temper mixture about 25 percent of the paste. A few sherds leached, but the angular holes easily distinguish the paste from leached shell-tempered material. In some cases the limestone was so heavily embedded with fossil shells that the temper suggests shell; however, in this report shell temper has always referred to fresh, unfossilized shells.

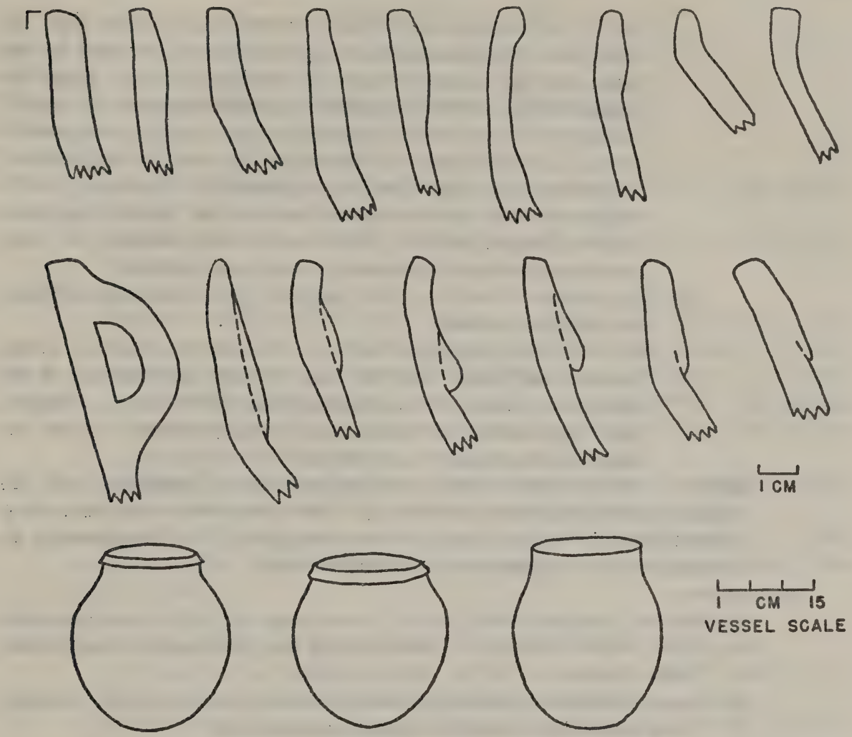

FIGURE 9.—Radford Pottery Series: Typical rim profiles and vessel shapes. Interiors of rims to the left.

Texture: Fairly compact paste, not friable, clayey feel; sherds when dropped have a low flat dull, pasty "ring." Hard to break, due to good paste mixture. Decided angular and jagged cleavage from the irregular temper particles, a noticeable feature of the series. Very fine traces of white mica in the clay give a faint sparkle to many of the sherds.

Color: All have some degree of a gray to gray-black core. In 75 percent, a thin black core 2 to 3 mm. wide with a lighter gray-tan zone extending to the exterior and interior. Core is almost the full width of the cross section with a paper-thin gray-tan or light-gray surface on the others.

Firing: Incomplete, in a poorly controlled oxidoreducing atmosphere.

Hardness: 3 to 3.5.

SURFACE:

Color:

Exterior: 75 percent a dull, dirty, gray-tan; 20 percent gray; 5 percent orange-tan.

Interior: Majority tend to be gray-tan with about 10 to 15 percent gray-black.

Treatment:

Exterior:

(1) Surface beaten with either a net-covered hand or paddle, creating a haphazard, overlapping, rough surface with knot and cord impressions. Surface usually roughened to a depth

of 1 to 1.5 mm. and apparently treated when leather dry. In some cases this knotted fabric seems almost too small for net mesh, but the separate weave is indistinguishable. Since the treatment in no way resembles impressions made by any of the fabrics normally distinguished under the fabric-impressed types, it is classified as a knotted fabric more closely related to netting than any other woven material. Caldwell (1951) designates this knot-roughened surface as "fabric impressed with a knotted fabric," but it seems the category of knot roughened and net impressed is more appropriate.

(2) Same treatment as No. 1 but partially smoothed over by hand swipings afterward.

(3) Wet surfaces, impressed with a diamond or square mesh, knotted net fabric leaving deep distinct impressions of the knots and cords. Mesh ranges from 0.3 to 1.2 cm.; deepest knot impressions around 3 mm., usually 2 mm. A few net impressions suggest a looped net.

Interior: Smooth with very irregular and uneven surfaces with the larger temper particles protruding. The irregular surface is a diagnostic feature of the type. A few scraped on interior appearing as if some attempt made to remove irregularities.

Decoration:

(1) Finger pinchings along the lip, lower edge of folded-over rim or on the collar. Similar in technique to the pinchings on the Clarksville Series.

(2) Small gashes or nicks along the lip or on the exterior face of upper rim made with a small, round or pointed stick.

(3) Rarely a raised rib on the rim with gashes in it.

(4) Sometimes a few lightly incised lines near the lip.

FORM:

Rim and lip: Great variety and irregularity on each sherd.

(1) Rounded or flat top with rounded edges with some slight external protrusion or thickening on the exterior lip edge. All these tend to be vertical or recurved forming a short prominent rim. Only a few inslope at the mouth. Mouth diameters range from 14 to 30 cm.; majority 22 to 26 cm.

(2) Folded-over or externally thickened with a coil reaching 1.5 to 1.8 cm. in thickness. Very crudely applied and the folding-over is the less frequent method of thickening. Lip very irregular, ranging from slightly tapered, thin, round-point, to flat top with rounded edges, to rounded. Rim typically inslanting, vertical or slightly recurved rim. Mouth diameters range from 20 to 32 cm.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.7 to 0.8 cm., but great variation on each sherd.

Body diameter: Range 24 to 36 cm.; majority 26 to 28 cm.

Base: Rounded and usually thickened; sometimes round-flattened with a slight suggestion of platform.

Appendage: Occasionally, rounded (1 to 1.5 cm. in diameter) loop handles from the lip, or just below it, to shoulder on opposite sides. Sometimes a straplike handle, 1.5 to 2.0 cm. wide, in the same respective position as the loop handle. On a few rims small, paired or single, nodes about 1.5 cm. high and wide are just below the lip.

Shape: Round jars with globular body; an orifice smaller than body diameter, and either a recurved, slightly inslanted, or vertical rim.

RADFORD CORD MARKED

(Pl. 17, *c–g*)

Paste: Same as Radford Knot Roughened and Net Impressed.

Surface:

Color:

Exterior: Majority a dull, dirty gray-tan or a gray; only a few orange-tan.

Interior: Majority tend to be gray-tan; about 10 to 15 percent gray-black.

Treatment:

Exterior: Surfaces haphazardly beaten with a cord-wrapped paddle without too much overlapping and crisscrossing. Cords, a simple-twisted, two-strand cord with the majority a medium cord, 2.5 mm. in diameter, some range as low as 1.5 mm. in diameter. Impressions fairly shallow, due to application when clay leather hard. Sometimes cord markings do not extend to lip.

Interior: Hand smoothed, but uneven and irregular; temper particles often protrude. A few scraped, leaving an uneven surface.

Decoration: Typically none; occasional finger pinching along the lip, collar or lower edge of folded-over rim. A few nicked with a sharp pointed stick along the lip.

Form:

Rim and lip: Each rim very irregular with a great variety of shape.

(1) Rounded or round-pointed, unthickened rims, either incurving or slightly recurved. Mouth diameters 24 to 28 cm.

(2) Folded-over or externally thickened with a coil. Crudely applied or unevenly folded with a larger thickening at the lower edge of the coil. Lip shape highly irregular, usually flat top with only slightly rounded edges. Rim typically short, vertical necks or slightly recurved. Mouth diameters 24 to 36 cm.; rim thickness up to 1.5 cm.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.7 to 0.8 cm., with wide variation on each sherd.

Body diameter: Range 24 to 36 cm.; majority 26 to 28 cm.

Base: Rounded and usually thickened, sometimes round-flattened.

Appendage: Occasionally rounded loop handles from lip edge, or just below it, to the shoulder. Strap handles in the same position as the loop ones are sometimes found. Small nodes, 1.5 cm. wide and high, and either paired or single, are attached just below the lip.

Shape: Round jars with globular body, short to medium neck, an orifice smaller than the largest body diameter and usually a vertical or slightly recurved rim.

A RELATED LIMESTONE-TEMPERED TYPE: PAGE CORD MARKED

Page Cord Marked, originally described by Griffin (Manson, MacCord, and Griffin, 1944, pp. 405–406), is based on materials from the Keyser Farm Site, Va. It is a crushed limestone-tempered ware with a folded-over or externally thickened rim whose surface treatment, color, and shape are quite comparable to Radford Cord Marked. However, certain decorative features around the rim and collar of a cord-wrapped dowel, or string impressions, incisions, or punch marks along the lip, as well as the limited distribution of this type to a few sites in the North District of the Allegheny Ceramic Area, according to our present knowledge of Virginia archeology, made it impossible to place the cord-marked materials of the Radford Series into Griffin's type. Under the circumstances, it seems advisable to consider Page Cord Marked as a very closely related pottery type to the limestone-tempered Radford Series (pl. 17, *a*, *b*).

RADFORD FABRIC IMPRESSED

(Pl. 16, *k–l*)

PASTE: Same as Radford Knot Roughened and Net Impressed.

SURFACE:

Color:

Exterior: Majority a dull, dirty gray-tan or gray; only a few light tan.

Interior: Majority a gray-tan to gray-black; all have a grayish hue.

Treatment:

Exterior: Impressed with a plain-plaited or twined fabric. Usually impossible to distinguish the type of weave, for the impressions are sloughed, faint, or sometimes hand swiped after impression. The majority suggest that the fabric was wrapped around the hand or a paddle and then beaten or rubbed against the exterior of the vessel.

Interior: Smoothed but irregular and uneven. A few scraped.

Decoration: Sometimes finger pinched or incised gashes along the rim exterior.

FORM:

Rim and lip:

(1) Rounded or flat top lip with rounded edges with either a recurved or vertical rim. Mouth diameters 22 to 26 cm.

(2) Folded-over or externally thickened rim with a flat or rounded lip, reaching 1.5 to 1.8 cm. at the lower edge. Usually uneven and quite irregular. Mouth diameters 20 to 32 cm.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.7 to 0.8 cm.

Body diameter: Range 25 to 32 cm.

Base: Rounded and usually thickened.

Appendage: Sometimes round loop or strap handles from lip, or just below it, to shoulder.

Shape: Round jar with globular body; orifice smaller than the body diameter and either a recurved, slightly incurved or vertical rim.

RADFORD PLAIN

(Pl., 17, *h*)

Paste: Same as Radford Knot Roughened and Net Impressed.

SURFACE:

Color:

Exterior: Majority a dull, dirty gray-tan or gray.

Interior: Gray-tan to gray with a few gray-black.

Treatment: Exterior and interior smoothed, but uneven. Hand and finger swipings evident. Each sherd varies in thickness considerably.

Decoration: Rim nicked or with slight diagonal gashes. A few body sherds incised with a sharp instrument in parallel lines.

Form:

Rim and lip: Rounded and unthickened, or more commonly a folded-over or exteriorly coil-thickened rim with a flat top, round-edged lip. Usually vertical or slightly recurved rim forming a short neck.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.7 to 0.8 cm. with wide variation on each sherd.

Body diameter: Range 24 to 36 cm.

Base: Rounded and usually slightly thickened.

Appendage: Occasionally, round loop or strap handles from lip, or just below it, to shoulder.

Shape: Round jar with globular body; an orifice smaller than the largest body diameter, and usually a vertical or slightly recurved rim.

STONY CREEK SERIES

The Stony Creek Series is composed of a group of pottery types characterized by fine quartz sand temper, gritty and sandy texture, light tan to light orange-tan or light red-tan surfaces, fired in an oxidizing atmosphere, and with distinctive rim and vessel shapes (fig. 10). The following types comprise the series.

STONY CREEK CORD MARKED

(Pl. 19, *a–j*)

Paste:

Method of manufacture: Coiling, very prominent and evident in majority of sherds.

Temper: Fine to medium waterworn quartz sand with the grains ranging from small particles, almost indistinguishable to the naked eye, to medium coarse particles up to 2 mm. in diameter. If the size exceeded several millimeters and was more than an accidental occurrence of a stray pebble, it was classified into the Prince George Series. Preference for sand with a high amount of clear or white quartz particles was paramount. The compactness of the paste, the color, and other features immediately set off this sand-tempered type from the Clarksville Series of sand-tempered wares.

Texture: Granular, gritty, and sandy to the feel; slightly eroded surfaces often sparkle in light from the abundance of exposed quartz temper particles. Regardless of the size of the temper particles, the mixture is compact and not porous or granular, due to a well-kneaded paste. Fairly hard to break; not friable, but on eroded sherd edges rub slightly. The compact, sandy texture is one of the most diagnostic features of ware.

Color: Typically, a light rusty tan to light creamy tan exterior and interior with a thin grayish core, 1 to 2 mm. wide. The marked color change and the line of demarcation of the zoned core is very outstanding. About one-third of sherds lack the gray core and are a light creamy tan to yellow-tan to rusty orange throughout.

Firing: Oxidized in a fairly well-controlled fire. No fire clouds. One of the most consistently fired types of all the series.

Hardness: 3 to 3.5.

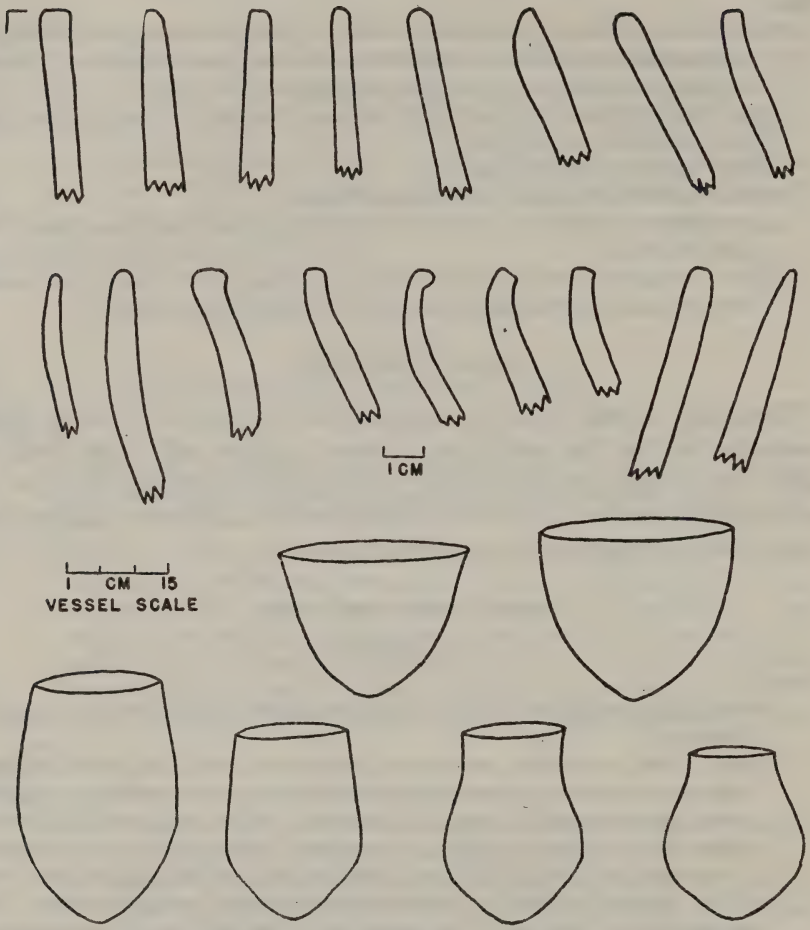

Figure 10.—Stony Creek Pottery Series: Typical rim profiles and vessel shapes. Interiors of rims to the left.

Surface:

Color:

Exterior: Light creamy tan to a light tan often shading into rusty tan. There is some slight regional distribution on this color range with a higher percentage of rusty tan in central Virginia.

Interior: The majority are identical to exteriors but in about 25 percent the interiors have a grayish hue.

Treatment:

Exteriors: Marked with a paddle wrapped with fine to medium fine cords (0.5 to 1.0 mm. in diameter); typically in a crisscross, well-executed, overlapping pattern, usually diagonal to the rim. Fairly distinct impressions, but not as deep as Prince George or Albemarle Series, for the body wall is thinner. Cords typically loosely wrapped around the paddle with wide spaces between each strand, ranging from 2 mm. to 5 mm. apart, with the majority spaced 3 mm.

Interiors: Consistently smooth and fairly regular and even; occasional hand and finger swipings still visible. Cord marking appears on the flat-topped rim in about 10 percent of the sherds.

Decoration: Typically none. On the inner lip of a few sherds, a cord-wrapped dowel has been impressed vertical or diagonal to the lip, spaced from 0.5 to 1.0 cm. apart.

FORM:

Rim and lip: Occasionally rim thickening or tapering to a rounded lip. Flat-top lips with rounded edges and straight sides, either vertical, insloping, or outsloping. A few rims show minor variations with a slight recurved twist just below the lip. Mouth diameters range from 24 to 32 cm. with the majority from 26 to 28 cm.

Body wall thickness: Range 0.4 to 1.2 cm. Majority 0.5 to 0.6 cm.

Body diameter: Reconstructed from sherd curvatures, ranging from 24 to 40 cm.; majority 28 to 34 cm.

Base: Conoidal to subconoidal.

Shape: A variety of shapes reconstructed from sherds; deep, open bowls; with subconoidal to conoidal bases; globular-bodied jars with conoidal bases and with insloping straight sides forming an orifice smaller than the body diameter; or tall pot forms with conoidal to subconoidal bases.

STONY CREEK FABRIC IMPRESSED

(Pl. 18, *a–r*)

PASTE: Same as Stony Creek Cord Marked.

SURFACE:

Color: Same as Stony Creek Cord Marked.

Treatment:

Exterior: Due to the sandy nature of the paste the sherds eroded easily, making the analysis of the exact type of fabric impression extremely difficult; this indistinguishable surface treatment was not due to smoothing. In over half the cases it was impossible to determine anything except that the surface had been impressed with a fabric, probably twined or plaited. A characteristic of the type is the faintness of the fabric impression even on the uneroded surfaces, suggesting application when the clay was leather dry. Of those techniques capable of determination, the most common was a very close (1–2 mm.) weft and a medium-coarse (3–4 mm.) warp of the type commonly called plain plaited, "coiled," twined impression (see footnote, p. 42). Rarely, a few sherds were impressed with an open weave, simple twined fabric forming a mesh 0.5 by 1.0 cm. with large simple-twisted, double-strand cords, measuring 1.5 mm. in diameter.

Interior: Smoothed and even; apparently smoothed when very wet by finger and hand swipings, for these marks often still visible. No combing or brushing.

Decoration: About 40 percent of the rims are smooth on the interior; the rest impressed on the interior of the rim with a cord-wrapped dowel. The impressions are all diagonally arranged, spaced approximately 1 cm. apart, and extending downward on the interior from the inner lip to a distance of 1.5 to 2.0 cm. The depth of impressions is usually 2 mm., ranging in width from 5 to 6 mm. A few sherds were impressed in the same manner with a smooth stick. On several sherds, punctations with a small dowel or stick were applied on the exterior shoulder or rim.

FORM:

Rim and lip: Largest variety of rim shapes in the entire Stony Creek Series, ranging from flat topped or rounded lips to thinly tapered rims with a rounded lip to slightly recurved rims with rounded or flat lips. Although each rim is regular, the wide variety suggests lack of standardization with this particular feature. The most consistently shaped rims are those with the cord-wrapped-dowel impressions on the interior; these recurve slightly from an insloping straight body wall so that the inner surface is exposed. Except in a few cases in which a thin rib appears on the exterior lip, rim thickening does not occur. Mouth diameters range from 18 to 34 cm.; majority 22 to 26 cm.

Body wall thickness: Range 0.3 to 1.0 cm. Majority 0.5 to 0.6 cm., with about 25 percent of the sherds 0.4 cm. Each sherd uniform in thickness.

Body diameter: Estimated from the fragmentary sherds to range from 14 to 36 cm. in diameter, majority 28 to 32 cm.

Base: Conoidal to subconoidal.

Shape: Most typical is a cylindrical-shaped jar with a conoidal base and straight walls insloping to form an orifice smaller than the body diameter. The variations in this range mainly in the rim shapes which sometimes form a short-necked pot form with a rounded body. Only a few sherds suggest a deep bowl shape.

STONY CREEK NET IMPRESSED AND ROUGHENED

(Pl. 20, *a–c*)

PASTE: Same as Stony Creek Cord Marked, except a larger number of the cores are a reddish-orange or reddish-tan than in that type.

SURFACE:

Color: Same range as Stony Creek Cord Marked except that over half the sherds in this type tend to be slightly more red-tan or orange-tan.

Treatment:

Exterior: Impressed with a knotted net fabric with both the knots and the intervening cords of the mesh clearly imprinted upon the wet clay. Knots, 1 to 2 mm. deep; mesh 1 mm. deep and 0.5 to 0.7 cm. square, reaching 1.0 cm. square in only one case. Half the impressions suggest paddling with the net wrapped around the hand or a paddle, for there is a slight overlapping creating a net and knot-roughened surface.

Interior: Smoothed and fairly even.

Decoration: Typically none. Only a few, the lip or only the inner surface of the lip is finger pinched, with only one example of the inner lip impressed diagonally with a smooth dowel.

FORM:

Rim and lip: Of all the types in the Stony Creek Series, these rims show closer affinities to the Prince George Series, especially Prince George Net Impressed and Roughened. They are slightly irregular with either rounded, flat topped with rounded edges, or slightly tapered rounded to round-pointed lips, ranging from straight-sided, inward slanting rims to vertical or slightly recurved rims. Mouth diameters 26 to 36 cm., majority 28 cm.

Body wall thickness: Range 0.6 to 1.5 cm. Majority 0.7 to 0.8 cm.

Body diameter: Reconstructed from sherd curvatures, 26 to 42 cm., majority 32 to 34 cm.

Base: Conoidal to subconoidal.

Shape: Large cylindrical to globular-bodied pot forms with conoidal to subconoidal bases and vertical to slightly insloping sides forming an orifice smaller than the body diameter. A few globular-bodied jars with short rims either vertical or slightly everted.

STONY CREEK SIMPLE STAMPED

(Pl. 20, *f–k*)

PASTE: Same as Stony Creek Cord Marked.

SURFACE:

Color: Majority a tan to cream-tan to light orange, a few gray-tan.

Treatment:

Exterior: Surface haphazardly beaten with a paddle wrapped with smooth thongs or with thin, smooth roots or grass. The impressions sometimes suggest light brushing but careful examination of the ridges and grooves reveals an impression with no dragging or scraping. The material covering the paddle is not carefully wrapped but often overlaps; 25 percent of sherds suggest paddling with the sharp edge of a single, squared stick. Of the total sample only 5 sherds impressed with a simple grooved paddle, forming parallel ridges 1 mm. wide, and grooves 3 to 4 mm. wide.

Interior: Smoothed and fairly even.

Decoration: Due to the haphazard arrangement of the stamping, it cannot be considered a decoration. Rarely, punctations made with a small hollow reed, finger punctations or gashes on the rim exterior.

FORM:

Rim and lip: Lip varies from squared flat top, to rounded with an occasional sherd showing exterior or interior thickening. Typically, rims slope inward with straight walls or incurve slightly; occasionally a rim outcurves. Mouth diameters 22 to 30 cm., averaging 26 cm.

Body wall thickness: Range 0.4 to 1.0 cm. Majority 0.5 to 0.6 cm.

Body diameter: Reconstructed from body sherds, 24 to 36 cm.

Base: Subconoidal.

Shape: Small pot forms with subconoidal bases, globular body and incurving or insloping sides forming an orifice smaller than the largest body diameter. A few small open bowls; base unknown.

NOTTOWAY INCISED

(Pl. 20, *l–p*)

PASTE: Same as Stony Creek Cord Marked.

SURFACE:

Color: Same as Stony Creek Cord Marked.

Treatment:

Exterior: Fabric impressed with a coarse warp, medium to fine weft, of the style described in Stony Creek Fabric Impressed. Occasionally, a semismoothed fabric impression suggesting surface smoothing after application.

Interior: Smoothed; hand swipings visible on a few; regular and even.

Decoration: The consistency of decorative application on a single type of surface treatment and associated paste (Stony Creek Fabric Impressed) permitted the establishment of a separate decorated pottery type rather than the consideration of the designs as mere variations of a basic undecorated type. Incisions made with a flat, blunt stick measuring 2 to 4 mm. wide. The wide incising tool dragged, leaving fine striations within the incision. Applied very crudely and unevenly, suggesting hasty application with little consideration of workmanship. Rarely, a sharp pointed tool, less than 1 mm. wide, utilized. Designs on rims as well as entire body exteriors. Motifs vary from diagonal lines extending downward from the lip, haphazard crosshatching, double chevrons, paired lines, and triangles.

FORM:

Rim and lip: Rounded, round-pointed, or flat top with round-edged lip, on a slightly incurved, straight-sided but inslanting rim. Occasionally, the rim recurves slightly. Mouth diameters 14 to 26 cm.

Body wall thickness: Range 0.3 to 0.8 cm. Majority 0.5 to 0.6 cm.

Body diameter: Based on sherd curvatures, 18 to 32 cm.

Base: None found; probably same as Stony Creek Fabric Impressed; i. e., conoidal to subconoidal.

Shape: Small to medium jars with incurving rim or pot form with straight sides insloping slightly or with recurved rims.

STONY CREEK PLAIN

(Pl. 20, *d–e*)

PASTE: Same as Stony Creek Cord Marked.

SURFACE:

Color: Same as Stony Creek Cord Marked.

Treatment: Exterior and interiors smoothed, fairly even and regular showing occasional finger swipings. A few slightly rough and uneven.

Decoration: Typically none; an occasional gash or nick along the exterior of rim or lip.

FORM:

Rim and lip: Flat top with round edges, rounded, round-pointed lips on either gently outcurved or incurved rims. Mouth diameters 20 to 28 cm.

Body wall thickness: Range 0.5 to 1.0 cm. Majority 0.6 cm.

Body diameter: From sherds, 26 to 36 cm.

Base: Subconoidal to rounded.

Shape: Medium size pot forms typical of the whole Stony Creek Series; see Stony Creek Cord Marked.

RIVANNA SCRAPED

PASTE: Same as Stony Creek Cord Marked.

SURFACE:

Color: Light orange to tan with more reddish-tan than normally typical in the Stony Creek Series.

Treatment:

Exterior: Scraped or combed with a tool which leaves small, regular striations. Parallel and nonoverlapping or crisscrossing.

Interior: Smoothed and fairly even.

Decoration: None; surface scraping too haphazard to be considered decoration.

FORM:

Rims and lips: None found.

Body wall thickness: Range 0.5 to 1.0 cm.

Body diameter: 28 to 34 cm.

Base: None found.

Shape: Not reconstructible from the limited sherd sample, but probably the rims, base, and total shape fall into the typical forms of the Stony Creek Series.

MISCELLANEOUS POTTERY TYPES

Insufficient sherd samples permit only a brief description of variant pottery types. The ultimate formulation of these residue sherds into fully accepted pottery types will depend on further work; their description here is merely for easy reference and in no way determines a final pottery type.

CORNETT COMPLICATED STAMPED

(Pl. 23, *a–c*)

Five sherds from the Cornett site of the same temper, paste, color and firing characteristics of the rest of the pottery from Cornett site (i. e., fine sand temper, compact paste, oxidoreduced firing, grayish tan to brown surfaces) are stamped with a complicated curvilinear design. The decoration was applied to a smoothed surface by means of a wooden paddle, grooved to a depth of 1 to 1.5 mm. and with the ridge and groove ranging from 2 to 4 mm. Interior is plain except that of one sherd which is combed in a crisscross pattern. The flat top lip with rounded edges is made with a folded-over or externally thickened, vertical coil, forming a short, vertical rim from sharply incurved body walls. Mouth diameter of samples is 28 and 32 cm. Body wall thickness ranges from 0.5 to 0.8 cm.

SOUTH-CENTRAL UNCLASSIFIED SERIES

(Pl. 22, *a–n*)

A few sherds of a distinct, coarse, gritty-textured, sand-tempered paste, with surface colors and core a reddish orange, a high percentage of mica, and iron pyrites in the paste, and usually fine cord-marked or medium-fine fabric-impressed are obviously not similar to any of the established pottery types of Virginia and hence are established as this category. Thin body walls from 0.5 to 0.7 cm. are quite distinctive and usually the interiors are smoothed and not combed. Sample too small to determine shape features but they suggest pot forms with fairly straight to gently outcurved sides, direct rims either slightly tapered or rounded with mouth diameters ranging from 25 to 30 cm. Although certain features suggest relationships with the Stony Creek Series, they are not identical pottery types; the high percentage of mica and iron pyrites appears to be intentional rather than mere accidental mixture.

CLAY-SHERD TEMPERED PLAIN

(Pl. 21, *a–f*)

Since the sample is limited to about 50 sherds, the establishment of this type is purely tentative; however, the following characteristics are consistent:

Paste:

Method of manufacture: Hand modeled; no coil lines evident.

Temper: Irregular particles of light tan clay and angular particles of flat, hard, smoothed surfaces of crushed sherd. About half of the temper mixture is without any doubt crushed, fired clay (sherd). The particles are prominent and stick out on the surfaces, making them very irregular.

Texture: Lumpy, porous, poorly mixed, very friable.

Color: Temper particles always a lighter color than the orange to orange-tan of the rest of the paste.

Firing: Oxidized.

Hardness: 2.5, soft.

Surface:

Color: Exterior and interior orange to orange-tan.

Treatment: Both exterior and interior very rough and uneven and irregular with lots of lumps; hand swiped leaving a plain surface.

Form:

Rim and lip: Rounded lip with a very irregular profile with the rim vertical or slightly outslanting. Mouth diameters are 26, 28, 30 cm.

Body wall thickness: 0.6 to 1.2 cm.; very irregular on each sherd.

Body diameter: Impossible to determine from sherds; one suggests 30 cm.

Base: Flat with a short pedestal.

Shape: Tentatively reconstructed from the small sherd sample as rounded, open bowls with outslanting walls and a flat, pedestal base.

SERIATION STUDIES AND CERAMIC AREAS

METHODOLOGY

After the pottery had been classified into the various types defined in the previous section, the next step was to calculate the percentage occurrence of each type at a site. These data would give some objective idea of the popularity of various types at each site and then, by interdigitating and seriating the various types from the sites, the trend and shift from one type and series to another through time and/or space would be evident. All the steps essential to the seriation, the limitations and problems of the method, and the finer theoretical details cannot be described in detail in this report,[6] but the basic data are presented in tables 1 to 8, appendix 1, giving both the counts and the percentages of each type from each site, alphabetically arranged, so that any interested person can rehandle the data in any way he desires. Because a sample smaller than 100 sherds sometimes gives a warped picture of the various ceramic types of the site, these small samples were not usually plotted in to the graphs for seriation. (See Ford and Willey, 1949, pp. 34–37, for the explanation of this point.)

When the percentage occurrence of each pottery type from a site had been calculated, this was plotted as a horizontal bar graph on a strip of millimeter paper with each pottery type located in the same place on each chart. Then one of the types was selected as a basis for arranging the sites according to some order of descending or ascending frequency. By plotting each site on a separate strip of graph paper it could be manipulated with ease until some meaningful picture was finally obtained. In other words, the first arrangement was purely objective and arbitrary, made solely upon a percentage basis with no knowledge of what was the top (the most recent) or the bottom (the oldest) part of the sequence. Only trends of types were sought.

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[6] For detailed and excellent discussions of the methodology of surface survey, stratigraphic analysis, and quantitative seriation of pottery types, see Ford and Willey, 1949, vol. 43, pt. 1, pp. 38–52; and Phillips, Ford, and Griffin, 1951, vol. 25, pp. 219–233.

Immediately it became apparent to the author that, since such a variety of pottery series were included in the study, representing several distinct geographical areas, one could not expect any clearcut and simple single seriation for the whole State, but rather that the analysis would have to be handled on the basis of regional developments which produced distinct pottery types and series. In several cases the same pottery series has a distribution in more than one geographical region; however, other quite distinct pottery types were associated with the series in each separate area. Experiment showed that these pottery types could not be handled by a simple interdigitation of sites according to an ascending or descending popularity of the type in common and that this single method was inadequate and presented a false interpretation of the cultural factors involved. The case cannot be made too strong that a mere arrangement of all the pottery types in a simple percentage order is not enough; one has to evaluate the situation, understand the cultural factors which determine and affect pottery, and realize the strength of the regional geographical influences on the aboriginal cultural development in the area today known as Virginia.

Good and meaningful seriation cannot be attained without some method that will indicate absolutely which is the top and which is the bottom of the seriated sequence. Although the relationship of one site to another is easily demonstrated by the purely objective arrangement of the percentage graphs, this might be an artificial one and would not necessarily have any bearing on the actual cultural situation without other supporting evidence. Deep stratigraphic excavations can provide this by showing the trends of pottery types in the ground, thus indicating the sequence into which the various sites can be fitted. Regrettably, as the site and excavation data clearly demonstrate, the refuse deposits of the sites in Virginia are usually shallow and all within the line of cultivation. Rarely does one encounter a site with enough length of occupation or in an uncultivated situation to present deep undisturbed refuse. The Potts site is one of those exceptions.

For the south coastal area of Virginia we have a fair trend of pottery types clearly shown by stratigraphic excavations, into which the seriation of the surface materials can be placed. For the rest of Virginia, unfortunately, no such site was found or has been excavated to date; therefore, the actual trend, i. e., which is the bottom and which is the top of the sequence, had to be derived from other sources. Sometimes published accounts of ceramic trends in nearby areas seemed to substantiate the seriated one in Virginia. Occasionally, accounts of aboriginal occupation suggested the occupation of a site at the time of the European contact. If the pottery types seriated in a trend in which a particular site mentioned in historic documents was near the top instead of the bottom of the sequence, this fact would be used as evidence to support the seriation. For the Eastern United States, certain established trends in aboriginal ceramics had been demonstrated; these could be either the same or different in Virginia. Comparison of the data often offered supporting evidence to the seriated Virginia sequence, or if the trends were different an explanation of the cause and the proof to support such a difference were necessary. Last, but by no means the least, was the supporting evidence from other artifacts found in association with the pottery. The projectile points were the most useful, and the excellent typological and classification study by Dr. C. G. Holland has been added to the report as appendix 2. In other words, if certain sites seriated in a particular order and the projectile-point seriation was found to seriate in a similar, or nearly similar order, there was supporting evidence for the correctness of these sequential arrangements. To summarize the whole situation of the seriation of the sites with a sample sufficiently large to be utilized in the quantitative approach, no single, simple method can be, or was, followed. The study made use of all possible clues, comparative data, limitations of the methodology, and study of surface and excavation data to present the following interpretations of aboriginal cultural development in Virginia from a study of pottery types.

It has been asserted that the quantitative method of interpreting pottery types cannot be applied on these shallow site deposits. Knowing the limitations as well as useful functions of the method from his own extensive use of the technique in Peru and in the Amazon, as well as its application by others in the Southwestern and Southeastern United States and in South America, the author was not convinced that Virginia archeology constituted an exception until a conscientious effort had been made to apply the method there. Many argue that it is a methodological error to handle the ceramics from a surface collection as a unit. Granted, no hard and fast rule can be utilized. But, by classifying the potsherds into types instead of merely separating them by surface treatments and/or temper and handling the data of each category independently, a site of single occupation slowly changing through time, or a site with several different occupations, is usually discovered quickly. If it is realized that the frame of reference consists, not of individual sherds and their peculiar characteristics, but of large masses of material grouped together into pottery types with distinct traits, the problems of the method will seem less. It cannot be overemphasized that the methodology of pottery type classification and seriation is based on the assumption of a full understanding of the cultural processes, such as internal change, diffusion, conquest, acculturation, and how these processes are reflected in the pottery. In other words, the potsherd is not an inherent type that classifies itself; rather the archeologist types the sherds into categories which will be meaningful by their revelation of certain trends that show the effects of cultural processes through space and time.[7]

The argument most frequently offered against the use of the quantitative method in Virginia archeology is the mixture of cord-marked, net-impressed, and fabric-impressed sherds on the surface of a single site. It is true that in some areas of the Southeast, different surface treatments have decided temporal meaning and suggest distinct cultural groups because the various techniques are on totally different wares. However, when a single site, or the excavated strata in a site, produces sherds with several different surface treatments, but whose characteristics of paste, firing, temper, rim, and vessel shapes are identical, the presence of these different surface treatments does not of itself prove separate cultural groups with gross temporal differences. There are all degrees of cultural mixture with the intermingling of local pottery traits with those received by diffusion. In peripheral regions pottery traits, which are distinct in time and space in nearby areas, can easily amalgamate into a single cultural horizon. Obviously, the method of percentage occurrence of types and their seriation cannot be applied without certain corrections in the calculations if there is evidence to prove that several different groups occupied the site at different times. These scrambled, or mixed sites, are easily spotted but usually not solely on the basis of a single ceramic trait such as surface treatment. In a few cases a site was obviously a mixture of pottery types of totally distinct pottery series, having temporal and areal differences. Otherwise, in spite of the various arguments against the method it cannot be clearly demonstrated by the evidence from the 24,047 sherds from the 96 different sites that the majority of the sites in Virginia represent anything but a culturally homogeneous unit changing through time both internally and from diffusion.

The full appreciation of why the classificatory method and the percentage occurrence of types seriated into a sequence can be applied to Virginia archeology and produce meaningful results will come after the seriation and the resultant ceramic areas are presented, with all the limitations, problems, and interpretations fully explained. Throughout the following discussion the reason for presenting the seriated data as finally derived will be explained in detail. To avoid the possibility of ignoring any evidence, the pottery types were broken down into the separate categories of surface treatment and temper, ignoring the associational features presented in the pottery type descriptions. These data are presented either in tabular or graphic form throughout the section to indicate the possible usefulness or uselessness of this type of analysis.

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[7] Ford and Willey (1949, pp. 38–43) and Ford (1951, pp. 91–100) give an excellent discussion of these theoretical points.

The seriations are arranged by geographical areas and their pottery complexes except in the case of the Potts site, which precedes all the discussions because it is the only excavated site with sufficient refuse depth to show ceramic changes in the ground. Where the pottery samples from a site were too small for inclusion in the seriation sequences, they are merely listed in each ceramic area to expand the geographical distribution of certain pottery series. For the interested student, the detailed pottery classifications of these and the seriated sites are listed in appendix 1, tables 1 to 8.

POTTS SITE EXCAVATIONS

As indicated in the site description, the strata cuts were made in 5- by 6-foot blocks,[8] controlled in 1-inch levels. For analysis all the sherds were classified according to each block and level, but it soon became apparent that in most cases the sample per level was so small that it was impossible to obtain any meaningful picture of the total mass of materials. One-inch levels were actually too sensitive to the problems of village refuse stratigraphy, and although valuable for the basic analysis and observation notes (these data are presented in tables 2–4) the levels were combined to form 3-inch strata for the calculation of the percentages. In this way the sample was in most cases large enough to be a fair indicator of the actual sherd sample present and much more reliable and usable for the application of the percentage system of analysis. Because of the excavation technique on a heavily sloped bank, the excess disturbance of the area from logging operation, or the exploratory nature of the original cut, Blocks A, B, C, F, and G, had to be retained separately and could not be combined into the stratigraphic study. The specimens from these blocks increased the number of sherds from the site, aiding immensely to establish the range of variation within the pottery types and to confirm the ceramic details of the other blocks.

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[8] The term "block" in Potts site excavations refers to the unit more commonly called "cut" or "section," but to conform to the excavation notes and data of McCary and to be consistent with some articles he is writing on the nonpottery artifacts from the site, his use of "block" was employed throughout this report. It is hoped this usage is not too confusing to the reader.

From a further study of the strata of these blocks, the adjacent locations of some of the blocks, and the same changes per level per block, it was convenient and methodologically permissible to combine several of the individual blocks as if they had been dug originally as larger strata cuts (see site diagram, fig. 2). For example, since D and E were adjacent, and showed exactly the same strata conditions and the same pottery trends in each level, the 1-inch levels from each block were at first combined. Still the sample was limited, therefore the lumped 3-inch levels of both blocks were combined, level for level, so that Blocks D and E are considered as a single strata cut to be known as Block D–E. The same procedure and reasons for it were applied to Blocks H and I, now designated as Block H–I. Since Blocks J, K, L, and M were all adjacent on a level part of the site, with the ceramic changes in each level identical, the 1-inch levels and later the lumped, 3-inch levels of these blocks were combined to form a unit known as Block J–K–L–M. The sherds from Block N will be handled as a complete unit because it was located in another part of the site away from the other cuts. By these various combinations the number of potsherds was large enough to handle on a percentage basis. However, in spite of these combinations of levels and blocks some samples were still so small they present warped and inaccurate percentages. It is pertinent to mention that if this site could have been excavated at one time by a large crew, probably the same size strata cut formed by the combination of the separate blocks would have been undertaken. Due to the conditions of short weekend trips by Dr. McCary, the blocks had to be made small enough to complete at one time.

Before the combined Blocks, i. e., D–E, H–I, J–K–L–M, and Block N are interdigitated and discussed according to their cultural changes for the whole site, the ceramic changes within each of these units will be discussed. Throughout the following exposition, reference to the graphic plots and tabulated data of the pottery types from these blocks (fig. 11; tables 2–4) will help. Only the highlights will be discussed; the rest can be gleaned directly from the charts.

Block J–K–L–M shows the highest percentage of Prince George Series of any of the other cuts, with a decline in popularity of this ware as the Stony Creek Series increases. Except for the low occurrence of the shell-tempered ware, the Chickahominy Series, no unusual features are noted in any levels of Block J–K–L–M.

Block H–I presents a unique feature from the lowest to the highest level, with Pottery Hill Net Impressed and Roughened never exceeding 15.8 percent, whereas in lowest levels of Block J–K–L–M this

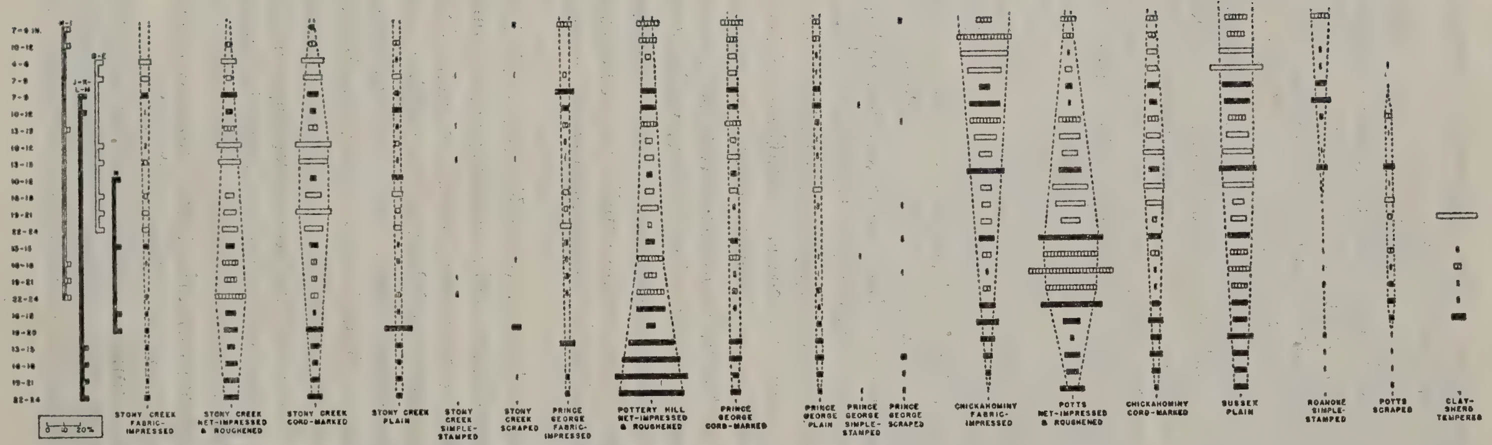

FIGURE 11.—Pottery type seriated sequence of the stratigraphic excavations of the Potts site. Each block is shown by a different symbol to clearly distinguish the levels of the interdigitated sequence.

type varies from 35.9 to 38.1 to 43.0 percent. The decline in this type would suggest the shift in popularity from the round, gravel-tempered wares of the Prince George Series to other series and types, especially Potts Net Impressed and Roughened. Ordinarily pottery does not shift from one type in a series to a similar type in a different series (i. e., here the pottery shifts from the round, gravel-tempered Prince George Series to the shell-tempered Chickahominy Series, but the change of surface treatment does not fluctuate immediately). The significance of this trend would suggest the need for some explanation besides mere slow, internal cultural change from one style of pottery to another. At first this factor was considered difficult to interpret. Questions arose: What caused this sudden shift in the three lower levels of Block H–I to a higher percentage of the Chickahominy Series instead of the high percentage of the Prince George Series found in the lowest levels of Block J–K–L–M? How could two strata cut so close to each other show such different ceramic trends?

The questions are possibly answered by a study of some of the minority types—the sudden introduction of clay-sherd-tempered pottery, a type foreign to Potts site and Virginia as a whole. Insufficient sherds were obtained to describe the sherds as a series and unfortunately these sherds do not appear to be identical to some of the established clay-sherd-tempered pottery types of the Southeast. However, there is no doubt the material is evidence of trade or an intrusive influence. At the same time clay-sherd-tempered pottery appeared in the site, the use of shell-tempered wares increased considerably. In all levels of Block J–K–L–M shell-tempered pottery occurred only in limited amounts. The same is true for the lower levels of Block D–E. However, in the three lower levels of Block H–I, containing 1.3, 4.5, and 1.2 percent clay-sherd-tempered pottery, and the two lowest levels of Block N, containing 7.9 percent and 1.5 percent clay-sherd-tempered pottery, the presence of the shell-tempered type, Potts Net Impressed and Roughened, increased considerably. In these respective levels Potts Net Impressed and Roughened is 30.3, 50.0, and 31.9 percent in Block J–K–L–M and 10.5 and 36.6 percent in Block N. Eleven clay-sherd-tempered sherds appear in the 22- to 24-inch level of Block D–E. Since this level, in spite of the combination of materials, produced only 45 sherds, the percentage calculation is an inaccurate account of the pottery trends. Although the increase of Potts Net Impressed and Roughened is not as prominent in this level and Block D–E as in the other two blocks, it nevertheless shows the same correlations suggested in Blocks H–I and N. In other words, the fact that clay-sherd-tempered sherds are only in these few levels, and then only as trade materials intrusive into the local ceramic traditions of the region, helps explain an outside influence bringing in associated ideas, which suddenly cause a shift from one pottery series to

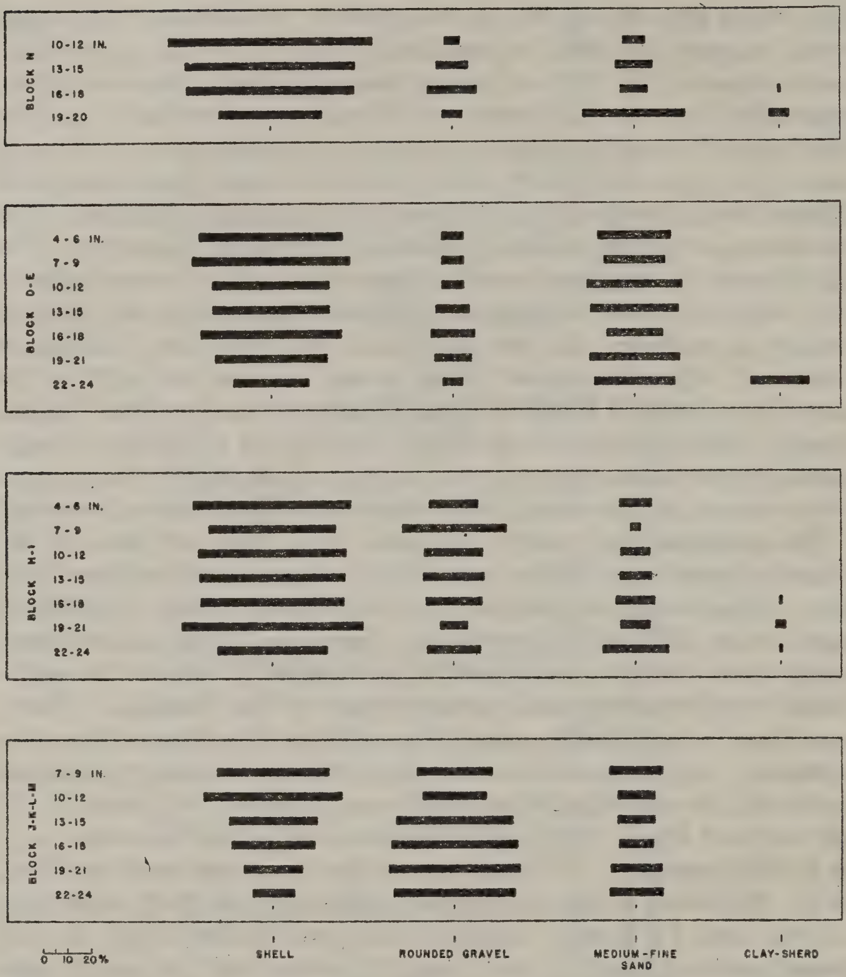

FIGURE 12.—Temper study of the pottery from the Potts site excavations.

another. The increased importance of this impact from the outside is shown in the sequence for the entire site (fig. 11).

Except for the aforementioned sudden shift in pottery types and series, nothing unusual is noted in any particular level of Block N.

Block D–E shows such a low percentage of the Prince George Series and an increase in both the Stony Creek and the Chickahominy Series, there is little doubt that this part of the site was occupied more intensely at a later time than the area covered by Block J–K–L–M. The most unusual feature of Block D–E is the appearance in several levels of Bold-Check-Stamped pottery on a crushed quartz temper, tan paste (pl. 21, *g–i*). There is little doubt that this material is also intrusive trade materials from the South, probably North Carolina, as will be discussed in detail in the comparative sections. No similar sur-

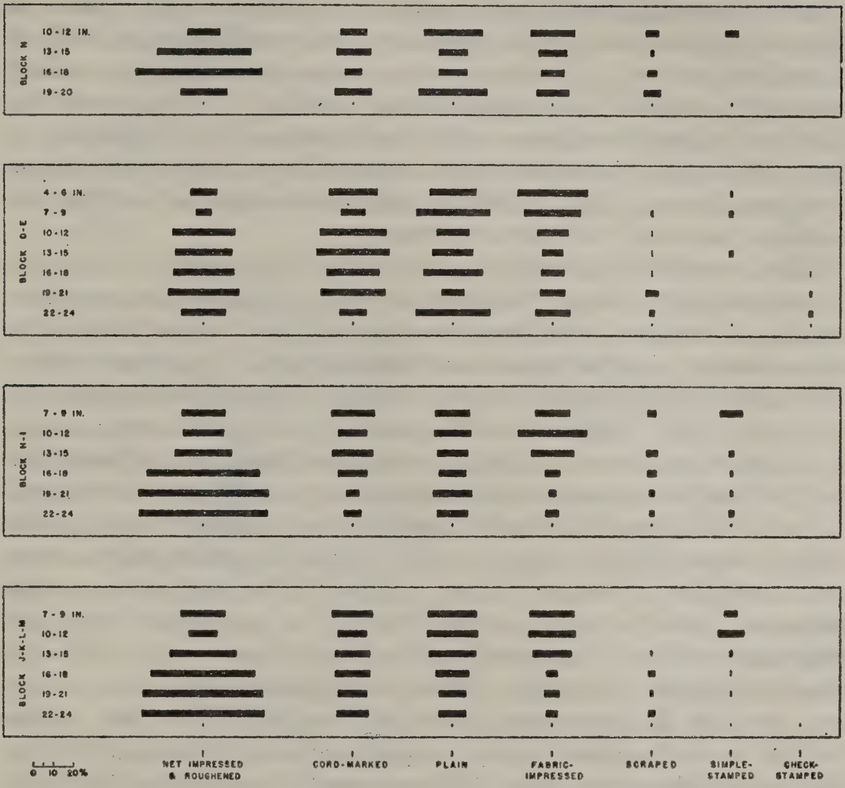

FIGURE 13.—Surface treatment study of the pottery from the Potts site excavations.

face treatment is found in other levels of this site or at other sites in Virginia. The decoration is not on any of the local pottery series.

The only other unusual feature of the Potts excavations is the appearance of one sherd of steatite-tempered plain pottery in the 21-inch level of Block H. The sherd can be typed as Marcey Creek Plain. The occasional sporadic appearance of steatite-tempered wares throughout various sites in Virginia, regardless of the pottery typical to the site or the time position in the seriated sequence, presents interesting problems. At the close of the report this situation might become more meaningful. From the standpoint of the Potts site, the sherd is not a local ware and steatite is not found locally. It is suggested that the sherd might be from a vessel traded at the same time the clay-sherd-tempered pottery is intrusive since both are common to the combined 19 to 21-inch level of Block H–I.

Before the blocks were seriated the pottery types from each level and block were broken down into temper studies (fig. 12; tables 5–6) and surface finishes (fig. 13; tables 5–6) just to see if this information would add anything to the interpretation of culture change in the area. The surface treatments of all sherds by levels and blocks are difficult to evaluate properly. It is the opinion of the author that it is methodologically unsound for the purposes of seriating sites in an area like Virginia (a peripheral area with many crossroads of influence) to lump all surface treatments together regardless of associated temper or types of ware. Nevertheless, the data was extracted and the percentages presented for future reference.

Within each block group (i. e., D–E, H–I, J–K–L–M, N) the trend of surface treatments ran from a high percentage of net-impressed and roughened surfaces in the lower levels to a decline in popularity in the upper levels. At the same time fabric-impressed surfaces increase from around 5 percent in the lower levels to as much as 35 percent in the upper levels. The other surface techniques do not show a constant trend but instead come in slowly, blossom, and then fade out so irregularly without much trend that it is almost impossible to see any significance in this type of analysis of surface treatments. This approach mainly shows that in this part of Virginia, regardless of the ware characteristics of temper, firing, and paste, the surface treatments taken as a whole tend to show decrease in popularity from net-impressed and net-roughened surfaces to an increase in fabric-impressed surfaces, of the plain-plaited or twined variety, from the bottom level to the uppermost levels of the site. The other surface finishes of cord-marked, plain, scraped, and simple stamped show no distinct and clear-cut trends. This approach demonstrates that in the stratigraphic excavation of Potts site, the increase in popularity of fabric-impressed wares through time is just the opposite trend found in some other parts of the East, where fabric-impressed is early and cord-marked is late.

The temper study by blocks showed more than the surface treatments. Temper had been one of the basic factors in establishing the series and therefore if it was a fundamental, sensitive, areal, and temporal ceramic feature, it should show definite trends. However, it cannot be overemphasized that the true and complete picture is not improved by these separations from pottery types, even though at times it might help to see a possible trend. For each block, even though from a percentage standpoint slightly different, the trend of each type of temper is generally the same. Clay-sherd temper comes in only in the lower levels of various blocks; shell temper increases in popularity from the bottom to top layers; the large, round, gravel temper declines in popularity throughout time as it gives way to shell temper and medium-fine sand temper. The sand-tempered pottery (Stony Creek Series) does not show any decided and diagnostic trend within blocks; it holds a steady percentage in each level within each block. However, between blocks there is considerable difference, which is mainly correlated with either the abundance or quasi absence of the large, round gravel of the Prince George Series. For example, in Block J–K–L–M the highest percentage of medium-fine sand temper is 20 percent while the round gravel, except in two levels, is around 50 percent; however, in Block D–E the highest percentage of medium-fine sand temper is 40 percent while the highest amount of large round gravel temper is 18 percent.

After carefully examining the trends within the blocks, the pottery type percentages in the individual levels for each block were interdigitated to get the complete sequence of how each level from each block fit together. Following the trend established in the blocks of a decline in Pottery Hill Net Impressed and Roughened as Potts Net Impressed and Roughened increased, then declined in favor of Chickahominy Fabric Impressed and Sussex Plain, the various levels were seriated accordingly. Although some of the levels, such as Block N Level 19 to 20 inches, Block D–E Level 22 to 24 inches, Block J–K–L–M Level 7 to 9 inches, and a few others, had such small samples and the percentage is probably slightly askew, they were included in the complete seriation chart so as not to eliminate any particular level from any block. The unevenness of the bar graphs is sometimes explained by the skewed percentages of a small sample. To illustrate: the unusually large percentage of sherd-clay-tempered plain ware in Level 22 to 24 Block D–E is misleading; the small sample of Level 10 to 12 Block N probably accounts for the absence of any Chickahominy Fabric Impressed and too much Sussex Plain. These discrepancies can easily be spotted, and for reference the number of sherds per level used for the percentage calculations are shown in tables 2 to 4.

Reference to the seriation chart will immediately indicate that throughout time certain pottery types at Potts sites are diagnostic from the point of view of showing cultural change; others are meaningless for they merely fluctuate haphazardly or appear in such low percentages throughout the entire time sequence they have little significance for this site. The latter point is to be stressed to those unfamiliar with the finer points of the seriation technique and its derived interpretations. In this sequence several pottery types and series prove culturally diagnostic and important time markers; others do not. In future work some distance away from this site, or even in some of the later seriation charts in this study, some of the types with insignificant and meaningless trends in the Potts site become the diagnostic ones of another sequence.

In the Potts sequence our most diagnostic trends are the fading out from a strong start in the lowest levels of the Prince George types (from 42 percent at the peak in the lower levels to as low as 1 percent in the upper levels), especially Pottery Hill Net Impressed and Roughened, while Stony Creek Net Impressed and Stony Creek Cord Marked show gradual increase with minor fluctuations (from 8 percent to never more than 20 percent). Yet, Stony Creek Fabric Impressed is so insignificant that it hardly presents large enough percentages to indicate any meaningful trend. Later we shall see that in the seriation of sites from southeast Virginia, around the drainages of the Nottoway, Meherrin, and Blackwater Rivers, the Stony Creek Series predominates, and the Prince George and Chickahominy Series are minority wares.

The present sequence of the strata cuts from Potts site might be questioned and perhaps others can derive a better seriation; however, after many tries, arrangements, and rearrangements, this one seems to be the most feasible in the light of the individual trends viewed within each block. The sequence shows the same clear-cut sudden increase in popularity of Potts Net Impressed and Roughened with the intrusion of clay-sherd tempered pottery in the lower third of the sequence. Immediately, Pottery Hill Net Impressed and Roughened shows rapid decline, never to come back in strength, while Potts Net Impressed and Roughened enjoys a sudden and increased popularity, to gradually fade out and give way to an increase in frequency of Chickahominy Fabric Impressed and Sussex Plain.

When looking at the final sequence, the relative position of one level and one block to another is made clearer, for it is obvious that the blocks are bound to cross-cut the occupational zones of the site. The overall picture of the interdigitated levels of Potts site suggests that the flat and level part of the site farthest from the river's edge and covered in part by blocks J–K–L–M, H–I, and N, was occupied first. The entire lower third of the sequence consists of levels from this part of the site, with the majority of them under the 16-inch level and only one rising as high as the 13-inch level. Since all the levels of Block D–E come in the upper half of the seriation, it would suggest that this part of the site was occupied later as the camp gradually shifted through the passage of time. There is little doubt that, if the excavation technique of Blocks B and C had permitted their use in the percentage analysis, these blocks would correlate closely with the trends of Block D–E. Proof of this conclusion is the fact that for the total sherd count from Block B, 66 percent were of the Chickahominy Series, 29.3 percent of the Stony Creek Series, and only 4.7 percent of Prince George Series. For Block C there is a similar distribution, with 55.3 percent of the Chickahominy Series, 34.5 percent Stony Creek Series, and only 9.5 percent of the Prince George Series.

At first glance one might argue that the sudden appearance of a limited amount of an intrusive ware, such as the clay-sherd-tempered pottery, at the same time there is a rapid change from the gravel tempered Pottery Hill Net Impressed and Roughened to shell-tempered

Potts Net Impressed and Roughened suggests the abandonment of the site and the reoccupation by another people at a later time. This idea cannot be supported for several reasons: (1) there is no sterile soil superimposed on any of the refuse; (2) except for a limited number of clay-sherd-tempered potsherds there is no mass introduction of new and totally distinct ceramic types. There is too much evidence from analyzing the trends within each block of the types, surface treatment, and temper to suggest anything more than an external influence coming in and amalgamating itself into the local cultural traditions, thus speeding up certain ceramic changes.

Given this trend shown by excavation, superimposed strata, and the analysis of the ceramics from the respective levels, the basis for seriation of sites from the area into a sequence is the next step.

COASTAL VIRGINIA CERAMIC AREA

(Fig. 14)

Instead of seriating the nearby sites directly into the complete Potts site sequence, it was better to extract four representative time levels with the major trends. This method made it possible to view the Potts site as a unit and at the same time to extract the important ceramic changes for comparative purposes. Scanning the Potts site sequence chart (fig. 11), one can easily see that Levels D–E 4–6 inches, D–E 13–15 inches, H–I 16–18 inches, and J–K–L–M 19–21 inches are representative of the major pottery trends from the upper to the lowest part of the sequence. Using these graph strips as a framework the sites with similar pottery types were seriated together. Even though there was a similarity of pottery types from the area of the Blackwater, Nottoway, and Meherrin Rivers in southeast Virginia and the south Virginia coast, decided differences in pottery type popularity and associated types from sites in the two areas prevented their combination into a single seriation. At first, only the sites from the south coastal area were seriated with the representative levels from Potts site. This included collections from Brockwell 2, Pottery Hill, Old Shipyard, Hoffmeyer, and Portobago sites. These sites seriated together well into the Potts site sequence because of the large percentage of pottery types of the Prince George or of the Chickahominy Series and a moderate percentage of types of the Stony Creek Series.

Following the trend established by the stratigraphic cuts, a decline of Pottery Hill Net Impressed and Roughened as Chickahominy Fabric Impressed and Sussex Plain increased, the sites seriated into a fair sequence (fig. 15). The high percentage of Stony Creek Cord Marked (30 percent) at the Pottery Hill site normally would not seriate it into this group but rather with the sites from the Southeast; how-

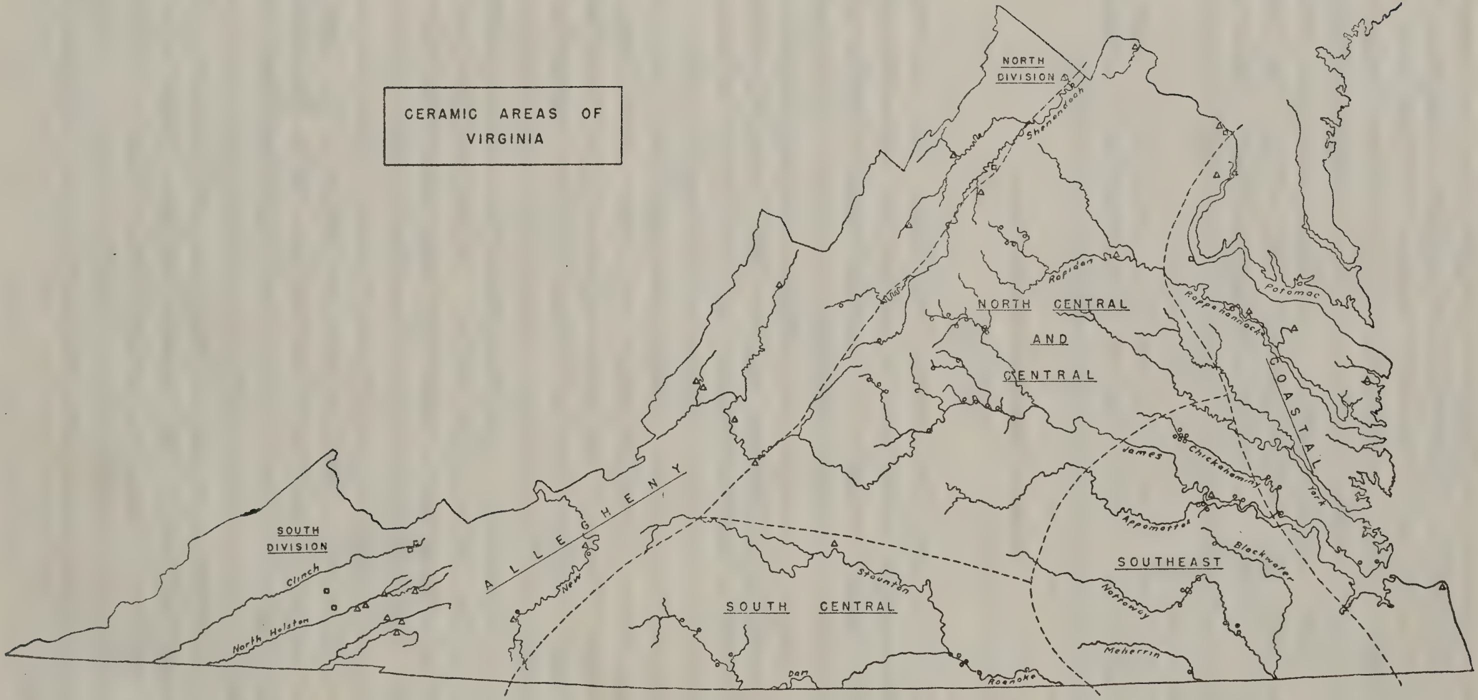
CERAMIC AREAS OF VIRGINIA
NORTH DIVISION
Shenandoah
Potomac
Rapidan
Rappahannock
NORTH CENTRAL AND CENTRAL
COASTAL
York
James
Chickahominy
Appomattox
Blackwater
SOUTHEAST
Nottoway
Meherrin
ALLEGHENY
New
Staunton
SOUTH CENTRAL
Dan
Roanoke
SOUTH DIVISION
Clinch
North Holston

Figure 14.—Ceramic areas of Virginia with the sites located by symbol only. Refer to site map (fig. 1) for site names.

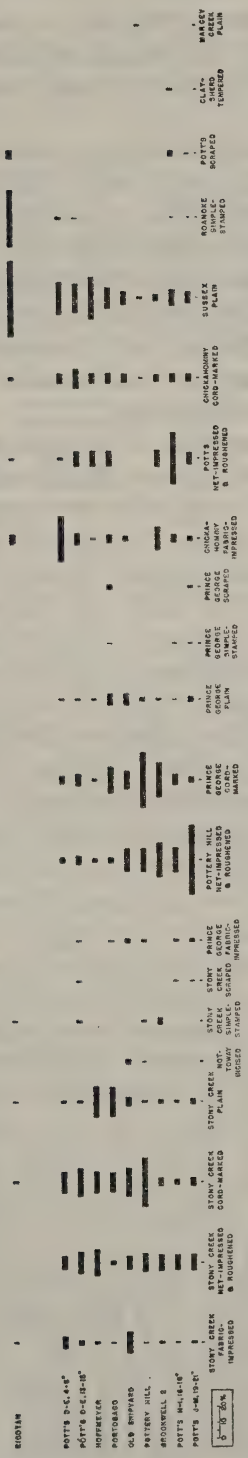

FIGURE 15.—Seriated pottery type sequence of the sites of the Coastal Virginia Ceramic Area.

ever, the abundance of Pottery Hill Net Impressed and Prince George Cord Marked force it into this coastal sequence. Again the sequence illustrates the need for about twice as many sites so the pottery curves would smooth themselves.

Two sites, Briarfield and Kecoughtan, should seriate into the upper part of the sequence but do not fit well. The trend established in the Potts site and from the other sites (a decrease in the gravel and sand-tempered pottery as shell-tempered pottery types increase) would place sites with a high percentage of shell-tempered ware in the upper part of the sequences. However, the bar graphs of the pottery types of the two sites will not fit nicely into the sequence; too much Roanoke Simple Stamped at Kecoughtan and Potts Net Impressed and Roughened at Briarfield confuse the picture.

Other methods, the separation of the types into temper and surface treatments, were sought to explain the situation. The sites arrange themselves in almost the same order as that established by types if the temper trend is a decrease of the round, gravel-tempered Prince George Series while shell-tempered pottery of the Chickahominy Series increases. With this trend the Kecoughtan and Briarfield sites fit at the top of the sequence with 98 percent shell-tempered pottery at Kecoughtan and 96 percent at Briarfield, lumping the pits and considering the site as a whole. In fact, since all the sand-tempered sherds of the Stony Creek Series at the Briarfield site came from only one pit, Pit W–2, intermixed with the shell-tempered material, and none of the other excavations produced anything but shell-tempered wares, for practical purposes one could conclude that the typical ware of the site was 100 percent shell-tempered ware.

In an attempt to determine a time difference between pits at the Briarfield site, which would give some indication of the changes occurring within the shell-tempering tradition, the sherds from each pit were classified separately, calculated into percentages, graphed. They were seriated according to the same trend established in the Potts sequence—a decline in net-impressed, shell-tempered wares as all the other types of plain and fabric impressed increased, while cord marking increased slightly, blossomed out to a peak, and then began to decrease. This attempt is, of course, based on the assumption that the various refuse pits would show a time difference because they represent the discarding of trash over a period of time and would probably not all be used at the same time. Admittedly, however, they would span a relatively short period. With such differences in Pit W–7 as 52.5 percent Potts Net and Knot Impressed and 31.0 percent Chickahominy Cord Marked, and Pit W–1 with 22.2 percent Potts Net and Knot Impressed and 58.3 percent Chickahominy Cord Marked, accidental selection hardly seems an appropriate solution to these differences in pottery. Therefore, to lump all the sherds from these pits would appear as a methodological error; they must be considered separately in hope that some trend will be significant for the site. Seriating the pottery types of each pit the sequence (fig. 16) suggests a change from an emphasis on net-impressed-and-roughened surfaces to cord-marked surfaces with only a trace of twined or plain plaited fabric impression. These sites with almost pure shell-tempered wares fit into the uppermost part of the sequences, out of the tradition of gravel-tempered ware, later than sand-tempered pottery and into that part of the time sequence where shell-tempering had become the dominant pottery type along coastal Virginia.

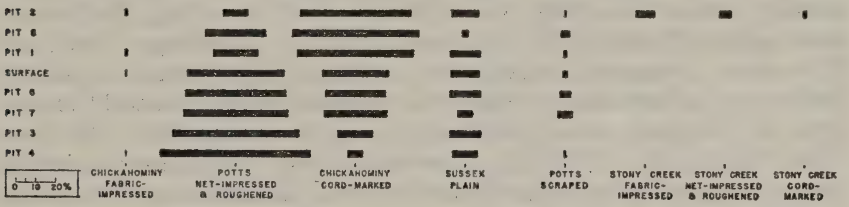

FIGURE 16.—Graphic plot of pottery types from excavations at Briarfield site.

The sherds from Kecoughtan site are another example of a site almost totally in the shell-tempering tradition. Once again, this site cannot be seriated directly into the coastal sequence except to indicate it belongs near the top. An insufficient number of sites with only shell-tempered sherds are available for the study to give all the internal changes that are taking place in the aboriginal cultural development along coastal Virginia. The Kecoughtan site contains 47.0 percent Sussex Plain and 35.2 percent Roanoke Simple Stamped pottery types not in abundance at other sites. Although along the coastal area the Potts site sequence demonstrates the increase of shell-tempered pottery through time, the trend of the ceramic changes occurring within this cultural time period are not demonstrated in those few sites with a high percentage of shell-tempered pottery. Since a sufficient number of such sites are unavailable to demonstrate this gradual shift of surface treatments within the shell-tempered tradition, the true relationship of these two sites is unknown.

As previously stated, although a study of surface treatments alone is insufficient, they were extracted from all the pottery types in these coastal sites and plotted into a sequence which continued to carry out trends of the Potts site excavations. Thus, using the surface treatment studies from three or four Potts site levels as a guide, the rest of the sites and the separate pits from Briarfield were arranged into a sequence. Throughout time net-impressed-and-roughened surfaces decline in popularity as plain and fabric-impressed surfaces increase, while cord marking starts slowly, mounts in popularity, but tends to decline as fabric impression increases. With the exception of the high percentage (10 percent) of simple-stamped surfaces of Block J–K–L–M Level 10–12 inches, this surface finish is quite insignificant. However, 36 percent simple stamping at the Kecoughtan site is so high it cannot be fitted into the sequence or explained.

Although only a limited number of the sites had collections large enough for inclusion in the percentage analysis and seriation study, nevertheless the small collections were valuable in increasing the distribution study of the ceramic complex and further substantiating the trends established by the seriation. The following sites are representative of a ceramic complex with a limited amount of Prince George and Stony Creek Series and a large percentage of Chickahominy Series: Briarfield, Cape Henry, Ferry Landing, Hoffmeyer, Kecoughtan, Nomini, Old Shipyard, Pissaseck, Portobago, Potts, and Wicomico. Geographically, these 11 sites offer an interesting distribution and rather strongly prove the delineation of a Coastal Ceramic area for Virginia, never penetrating very far inland from the shore line (figs. 1, 14). With the exception of one site, Accotink, which presents a peculiar mixture of sherds of the Chickahominy Series and the Clarksville Series, the sites present a ceramic consistency. In the same area there is a later ceramic complex, the Potomac Creek Series, but the proof of unrelatedness of these two ceramic traditions will be handled in the comparative section.

The sequence of ceramic trends for this ceramic area, designated as Coastal Virginia, is: Pottery types of the Prince George Series are the oldest wares in the area with a preponderance of Pottery Hill Net Impressed and Roughened. As this type declines in popularity, it is replaced by the fine-medium, sand-tempered Stony Creek Series in a moderate amount, while the shell-tempered pottery types of the Chickahominy Series become the predominant pottery with special emphasis on Chickahominy Fabric Impressed and Sussex Plain. Briefly, the trend is from gravel and sand-tempered pottery with net impressions to shell-tempered pottery with plain, cord-marked, fabric-impressed, and simple-stamped surface treatments.

SOUTHEASTERN VIRGINIA CERAMIC AREA

(Fig. 14)

It might seem peculiar to separate the sites from southeastern Virginia which center around the drainages of the Nottoway, Meherrin, and Blackwater Rivers from those previously discussed as Coastal. As soon as the ceramic features are described the reasons will be clear. An attempt was made to seriate the southeastern sites with those from the coast because both regions have the same pottery types; however, the difference in percentage occurrences of some of the individual pottery types and the series as a whole was sufficient to require an explanation of the cause. The sites from this area, seriated within themselves, make a good trend (fig. 17). The sequence demonstrates

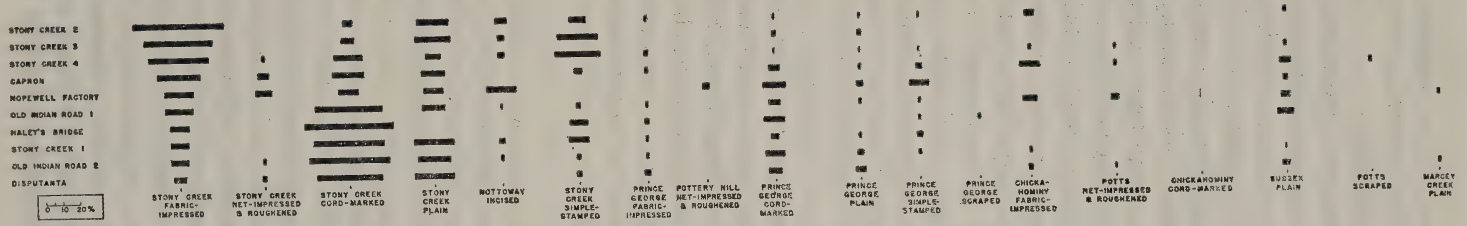

FIGURE 17.—Seriated pottery type sequence of the sites of the Southeastern Virginia Ceramic Area.

the possibility that the sites in southeastern Virginia are approximately contemporary with the coastal groups. Yet, each area has a slightly different pottery emphasis.

Before delving into the cultural factors and the theoretical implications of the situation, a clearer ceramic picture of these sites is needed. After a careful study of the various ceramic types at some of the sites from this area, two ceramic features were immediately recognized: (1) Compared to the Coastal Ceramic Area there was only a limited amount of the shell-tempered Chickahominy Series; (2) the Stony Creek Series of fine-medium, sand-tempered wares was predominant; some sites had a higher percentage of Stony Creek Cord Marked and others a larger amount of Stony Creek Fabric Impressed. The general absence of shell-tempered pottery types of the Chickahominy Series would suggest immediately that, according to the trends of the sequence, these sites would fit underneath any of the coastal sites. This was tried but it was discovered that, to put any, or all, of these southeastern Virginia sites underneath this sequence, the trends of the sand-tempered Stony Creek Series and the round, gravel-tempered Prince George Series were completely disorganized. In other words, the high percentage of Prince George types in the lower levels of the Potts site fading out at the same time that Stony Creek wares began to appear slowly was a picture of ceramic trends shown by excavation. To seriate the sites with the Stony Creek Series decreasing and the Prince George Series increasing would not be in accord with the evidence in the ground. The absence or presence of shell-tempered pottery might be explainable, but to reverse completely the sequence of development of gravel-tempered and sand-tempered pottery was not possible.

Under these aforementioned assumptions the sites were seriated with a decrease in Prince George Series, which, in this case, was Prince George Cord Marked, and an increase in the Stony Creek Series (fig. 17). As Stony Creek Fabric Impressed increased slowly, Stony Creek Cord Marked declined in popularity. Stony Creek Simple Stamped tends to increase throughout time, but the curve is slightly irregular and difficult to interpret. Shell-tempered sherds were not totally absent from the sites but their appearance was so sporadic and insignificant that no trend is visible. Not only does the ceramic trend of Potts site confirm the order of seriation of these sites in southeastern Virginia, but Holland's projectile point study (see appendix 2) coincides amazingly with the order of the sites based on ceramic types.

Now, the important point to explain is how the presence of the same series of pottery types in two nearby areas can show such different ceramic trends and be seriated independently of each other. Actually, a study of the percentages of certain pottery types suggests that the lowest level of the Potts site with such a high percentage of Prince George Series sherds is earlier than any of the sites in this study from either the Coastal area or from the Nottoway, Blackwater, and Meherrin Rivers. Upon a culture with a gravel and sand-tempered ceramic tradition, certain changes occur. Perhaps to call them regional specializations with different external influences would be more appropriate. For example, our stratigraphic information suggests rather strongly that an external influence brought into the Potts site clay-sherd tempered pottery and a preference for shell-tempered pottery. After such an influence the Potts site and the nearby area developed along lines distinct from those which would have occurred normally provided no external influence had shifted the emphasis to shell-tempered pottery. The sites of southeastern Virginia, away from the coast and all draining into the Nottoway, Blackwater, and Meherrin Rivers, did not get these strong external influences; their ceramics reflect internal change within the Stony Creek and Prince George Series. In other words, it is felt that the ceramic sequences suggest the two areas as approximately contemporaneous with slightly different local influences. The later sections on comparative ceramic data from outside the Virginia area will help to clarify these views.

Following the same procedure used in all the other regions the pottery types from the Southeastern sites were broken down into temper and surface treatment studies to see if any additional interpretative data could be squeezed from the pottery. Recognizing the limitations of these breakdowns, nevertheless a few interesting observations are noted. The temper study more than the surface treatment study once again offers an interesting proof of the contemporaneity of the two areas. As was noted in the Coastal Ceramic Area, the trend was a decrease in large, round, gravel temper as shell temper increased with the finer medium, sand temper running irregularly throughout the sequence. Although the decline of round gravel is the same, instead of shell temper coming in and eventually replacing all the sand or gravel tempered materials, it has an irregular trend while the sand temper increases.

The order of one or two sites is changed slightly in a comparison of the temper, surface treatment, and type sequences but the conformity is close. However, one of the most interesting points is the position of the Pottery Hill site. For various reasons this site was thought to be one of those transitional sites which tied in the Coastal Ceramic Area with its shell-tempered influences and a large percentage of round, gravel temper to the Meherrin, Nottoway, and Blackwater Rivers area with a high percentage of fine, sand-tempered wares. Pottery Hill will not seriate well into the temper sequence of the Coastal Area for it has too limited an amount of shell temper and too much sand temper. The presence of 15 percent Pottery Hill Net

Impressed and Roughened in the pottery type study shows why this site has to be included in the Coastal Ceramic Area and not in the sequence of the Southeastern Ceramic Area. However, the occurrence of 46 percent sand temper, 52 percent round gravel, and a trace of shell temper place the site at the bottom of the temper sequence for the Southeastern Ceramic Area. Actually, if about 20 more sites were located in the region where the 2 cultural zones are felt to overlap, it would probably be possible to find sites with sufficient variations in their pottery types to bridge the present gap, prohibiting the interdigitation of the 2 areas. Pottery Hill is such a site. Its central position in the pottery type sequence for the Coastal Area could be considered as approximately contemporaneous to the bottom of the pottery type sequence for the Southeastern area, but each region has its local developments and variations.

One sherd of steatite-tempered Marcey Creek Plain is found at Pottery Hill site. The cultural significance and meaning are not clear.

The surface treatments divorced of their association with temper and types is under most circumstances not too reliable an indicator because they crosscut pottery types which are established because of the recognition of certain cultural determinants. In fact, the results are so insignificant they are not worthy of tabulating or plotting in this report. The only point of interest derived from this type of analysis is the low percentage (0–11 percent) of net-impressed or knot-roughened surfaces in sites of the Southeastern Ceramic Area compared to the Coastal Area, which has only a few sites as low as 10 percent, the majority from 30 to 50 percent, and some as high as 70 percent net-impressed and roughened surfaces. The other surface treatments of the two areas generally run in similar percentages, with the exception of simple stamped. Limited and very sparse in the Coastal Ceramic Area, in the Meherrin, Nottoway, and Blackwater area, simple-stamped surfaces range from 3 percent to as high as 32 and 35 percent at Stony Creek 3 and 4, respectively.

Of all the ceramic areas this one needs more sites along the upper reaches of the Nottoway and Meherrin Rivers to determine the boundaries between this ceramic complex and that of central Virginia. Unfortunately, the only clue lies in some of the small collections, especially Terrapin Neck in Amelia County and the Richmond sites which only roughly define the northeastern limits of the distribution of the ceramic series typical to the area. The following sites define the Southeastern Virginia Ceramic Area and complex: Brockwell 1 and 2, Capron, Disputanta, Eppes Island, Haley's Bridge, Hopewell Airport, Hopewell Factory, Old Indian Road 1 and 2, Pottery Hill, Richmond sites, Stony Creek 1, 2, 3, and 4, and Terrapin Neck (fig. 14). The diagnostic pottery traditions in this area are easily distinguishable from others in

Virginia. The almost total absence of the shell-tempered Chickahominy Series as compared to the Coastal Ceramic Area is quite distinctive. The outstanding changes of pottery types through time are the shift from a small amount of Stony Creek Fabric Impressed to an increasing percentage of the same type while Stony Creek Cord Marked declines rapidly. It is pertinent to note that with the exception of a very limited amount of the round, gravel-tempered Prince George Series, the most popular pottery types of the area are in the sand-tempered Stony Creek Series. The increase in popularity of simple-stamped surface treatments within the Stony Creek Series is not repeated in other areas.

This ceramic picture suggests the occupation of southeastern Virginia by one cultural group, rather free from external influences, but undergoing internal cultural changes, all of which were reflected by shifts in popularity of certain pottery types.

CENTRAL AND NORTH-CENTRAL VIRGINIA CERAMIC AREA

(Fig. 14)

Moving into what might be called central and north-central Virginia, numerous sites with fairly large sherd collections are incorporated in the study. Unfortunately, all these sites were shallow, and no depth existed. Thus, even though a few sites were excavated, the ceramic interpretation must depend on seriation methods. Certain supporting factors from projectile-point studies and overlapping occurrences of one pottery series in two areas offer clues to support the seriation.

As indicated in the pottery section, all efforts to separate the fine, sand-tempered sherds from this area and similar sherds from southeastern Virginia failed. The classificatory efforts failed because the fine-medium, sand-tempered sherds were all the identical pottery series. This point is made at the beginning of the discussion to forestall the question that different companion wares with the sand-tempered materials would suggest a slightly different group of sand-tempered pottery types for each area. Shape, texture, temper, surface treatment, rim profile, color, and firing make all the sand-tempered wares from this area representatives of the Stony Creek Series. The companion ware at all these sites, but in varying degrees of popularity, is the crushed quartz, reddish to tan, sandy-textured pottery of the Albemarle Series.

Without knowing at the moment which was to be the top or the bottom of the ultimate seriation, one of the pottery types was chosen which showed great variation in popularity from site to site. Either Stony Creek Plain or Albemarle Fabric Impressed would fit into these categories. By pure chance the graph strips were arranged first according to a decline in Stony Creek Plain without any consideration of the trend of the other types. Afterward certain refinements and minor adjustments, immediately noticeable trends of decline, and/or increase of certain pottery types were clearly visible (fig. 18). In other words, seriated basically on a decline of Stony Creek wares, especially Stony Creek Plain and Stony Creek Cord Marked, the sites arranged themselves in such an order that Albemarle wares were in low percentage at the bottom of the sequence and gradually increased while the Stony Creek Series declined in popularity. Specifically, Albemarle Fabric Impressed increased; Albemarle Cord Marked increased slowly, blossomed out to a peak and then slowly began to fade. Although in a weaker percentage the same trend appeared to be true of Albemarle Plain and Albemarle Simple Stamped. Other interesting trends appeared in the sequence. There was practically no shell-tempered ware. The trace of shell-tempered pottery in Henshaw Shelter is without any doubt an intrusive item—trade or perhaps the result of a later, temporary use of the site as a campsite. Checking the graphs or the tabular data will demonstrate clearly that shell-tempered pottery is not a companion pottery with either the Stony Creek or Albemarle Pottery Series in central and north-central Virginia. Shell tempering is associated in the western tip of Virginia with one cultural group (New River Series) and in the Coastal Ceramic Area with another (Chickahominy Series); these influences do not penetrate except in sporadic instances either by trade, diffusion, or migration to central Virginia.

Perhaps the most difficult point to explain in this entire seriation chart is the role of the steatite-tempered pottery type, Marcey Creek Plain. There is absolutely no question that the steatite wares from Scottsville, Warren, Hardware, and Whippoorwill sites are good representatives of Marcey Creek Plain. Similarities in Marcey Creek Plain and Seldon Island Cord Marked with the Stony Creek Series is hard to explain. Aside from the soft, soapy texture caused by the steatite temper, and the difference in temper particles, the two wares have a sandy paste and a decided similarity in color and firing range from a light tan to a rusty, orange-red, and the cord impressions are fine to medium lines. A further point of interest is the high percentage of Stony Creek Plain associated with the steatite-tempered sherds at several sites; 35 percent Stony Creek Plain at Scottsville, 38 percent at Warren, and 30 percent at Hardware. At these three sites there is some suggestion that the steatite-tempered ware of the Marcey Creek Series and the sand-tempered pottery of the Stony Creek Series are related and associated. Not only is this impression derived from our sites, but Manson's excavations at Marcey Creek site (Manson,

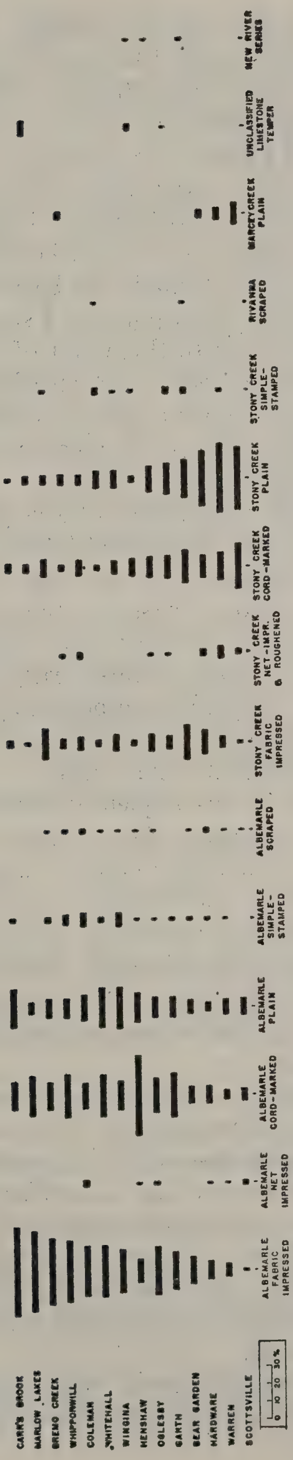

FIGURE 18.—Seriated pottery type sequence of the sites of the Central and North-Central Virginia Ceramic Area.

1948, pp. 223–226) offer the same associations. He found intermixed in the same levels Marcey Creek Plain and a grit-tempered pottery, designated as Marcey Creek Cord Marked. Reexamination of some of those latter sherds deposited at the United States National Museum suggests that, instead of a crushed-rock temper, as Manson states, the majority are tempered with river sand and are absolutely indistinguishable from Stony Creek Cord Marked. Under these associational circumstances the two pottery series can be visualized as belonging to the same cultural group and should not be considered as two totally separate occupations. The arrowpoint and stone tool complex from these sites adds further proof to this point of occupancy by a single group. In certain parts of the East, steatite-tempered wares are among the earliest ceramics known (Manson, 1948, pp. 223–226; Witthoft, 1950 p. 11; Cross, 1941 p. 66); hence the seriation of these sites at the bottom of the sequence is borne out.

Although the extensive correlation of the projectile-point studies with the ceramic trends will be handled later, it is pertinent to mention here that with the exception of one site, Bremo Creek, the position of sites in each seriation is basically the same. The malposition of the central Virginia site, Bremo Creek, appears to be due to the smallness of the projectile-point sample rather than to a deficiency in the ceramic sample. Therefore, supported by comparative ceramic studies and projectile points, the order of seriation of sites in central and north-central Virginia seems to be valid.

A closer examination of the sequence presents certain characteristic ceramic trends for this area. As the fine-medium, sand-tempered pottery of the Stony Creek Series becomes less popular, these types are replaced by the crushed quartz-tempered pottery of the Albemarle Series. Specifically, the main trends are a decline from 38 to 3 percent Stony Creek Plain while Albemarle Fabric Impressed increases from around 1 percent to 50 percent. Reference to the sequence chart (fig. 18) demonstrates the fluctuations of the other types and the relative positions of each site.

As with the other areas, the pottery types were also subdivided into a temper and a surface treatment study. The temper plot was exactly the same as the type sequence—a shift in popularity from the Stony Creek to the Albemarle Series. In the surface treatment study the order of some of the sites is in general similar to the temper and pottery type sequence, but other sites are greatly displaced without a clear reason for the malposition. In other words, nothing new or helpful, which was not already shown in the complete sequence of pottery types, was added by this approach.

The aforementioned ceramic series with their respective pottery types are distributed over a geographical area defined by the location of the following sites: Bear Garden, Bremo Creek, Buchanan, Carrs Brook, Catoctin, Coleman, Elk Island, Garth, Gordon, Hardware, Henshaw Shelter, Johnson Mill, Lipscomb, Little Falls, Luray Falls, Luray, Louisa, Marlow Lakes, Monasukapanough, Oglesby, Scottsville, Skinker's Ford, Tice, Tye River Forks, Tye River 3, Warren, Whippoorwill Hollow, Whitehall Shelter, Wingina. Several other sites, Buffalo Gap, Ivanhoe, and Linville, in the Shenandoah drainage show an interesting mixture of pottery types suggesting the sites are along the boundary lines of the Central and North-Central and the Allegheny Ceramic Areas (fig. 14). These sites show limited influence, or separate occupation, by ceramic traditions which apparently moved out of, or into, the western tip of Virginia and adjoining West Virginia, up or down the valleys of the Allegheny Mountains. Considering the location of all these sites, the Central and North-Central Ceramic Area extends from the northern boundary of the State down the Shenandoah Valley (in places the Blue Ridge acts as the barrier) to approximately the area of the headwaters of the Roanoke and Staunton Rivers, joining the boundaries of the other ceramic areas on the south and east.

In summary, the Central and North-Central Ceramic Area is typified by a decline in the popularity of fine-medium, sand-tempered wares of the Stony Creek Series, especially such types as Stony Creek Plain, as crushed quartz-tempered wares of the Albemarle Series become paramount. The general absence of any shell-tempered pottery is a most important diagnostic trait.

ALLEGHENY CERAMIC AREA

(Fig. 14)

The areal distribution of sites with pottery types representing the Radford and/or the New River Pottery Series has permitted the use of the term "Allegheny" to define this large ceramic area, for there is no question that the western side of this mountain range has some degree of ceramic homogeneity of limestone and shell-tempered pottery which are totally distinct from the rest of Virginia. However, a closer examination of this distribution suggests the subdivision of the region into local cultural complexes—a southern and a northern division.

THE SOUTHERN DIVISION

A careful examination of the sherds from the sites in western Virginia and those Solecki found from the Bluestone Reservation in West Virginia along the New River immediately indicated they all represented the same pottery types. Normally, the published data of Solecki (1949) would be used in the comparative section, but since the sherds were available for rechecking at the United States National Museum, and could be placed into the types established in this study, they are included in this section. Although Solecki classified his pottery first on temper, then on surface treatment, and gave the tabulated results for both analyses, he also published a chart showing in what combinations the surface treatments were associated with the temper for each site. Taking this information and quickly checking the sherds, it was soon evident that, except for a slight difference in terminology (he called many of the sherds "fabric roughened" which were typed by the author as "net impressed and knot roughened"), his limestone pottery types were representatives of the Radford Series, and his shell-tempered sherds were the New River Series. In fact, the New River Series could actually be established with absolute certainty only because of the large number of shell-tempered sherds with associated diagnostic traits found by Solecki.

The same procedure was possible with those western Virginia sites published recently by Caldwell (Caldwell, 1951). Since some sherds from a few of the same sites were on deposit at the United States National Museum and could be checked, all four sites described in this article could be used in this seriation study. Once again, by this examination and a slight reclassifying of some of the material he called "fabric roughened with a knotted material," comparable pottery types were obtained. This procedure permitted the comparison of the percentage occurrences of various pottery types from a larger number of sites for this geographical area than would otherwise have been available.

Again the shuffling of the sites into a sequence was begun first by inspection because there were no excavated sites in the area to be used as criteria. The sites were arranged with a larger percentage of limestone-tempered sherds, the Radford Series, declining as shell-tempered pottery, the New River Series, increased. Again this was, at first, an arbitrary arrangement. Nevertheless, the seriation produced some noticeable trends. Radford Net and Roughened Impressed declined as the shell-tempered counterpart, New River Net Impressed and Roughened increased, reached a maximum, then began to fade out and give way to another shell-tempered type of the same series, New River Plain. Accompanying these distinctive trends, both Radford Cord Marked and Radford Plain carried on without much fluctuation as companion wares to Radford Net and Knot Impressed. However, New River Cord Marked came in slowly, blossomed out, and then faded out as New River Plain continued to increase rapidly. The trends of this Southern Division of the Allegheny Ceramic Area are some of the most clear-cut in Virginia (fig. 19), and with such distinctive pottery types and series, there is little difficulty in defining this Southern

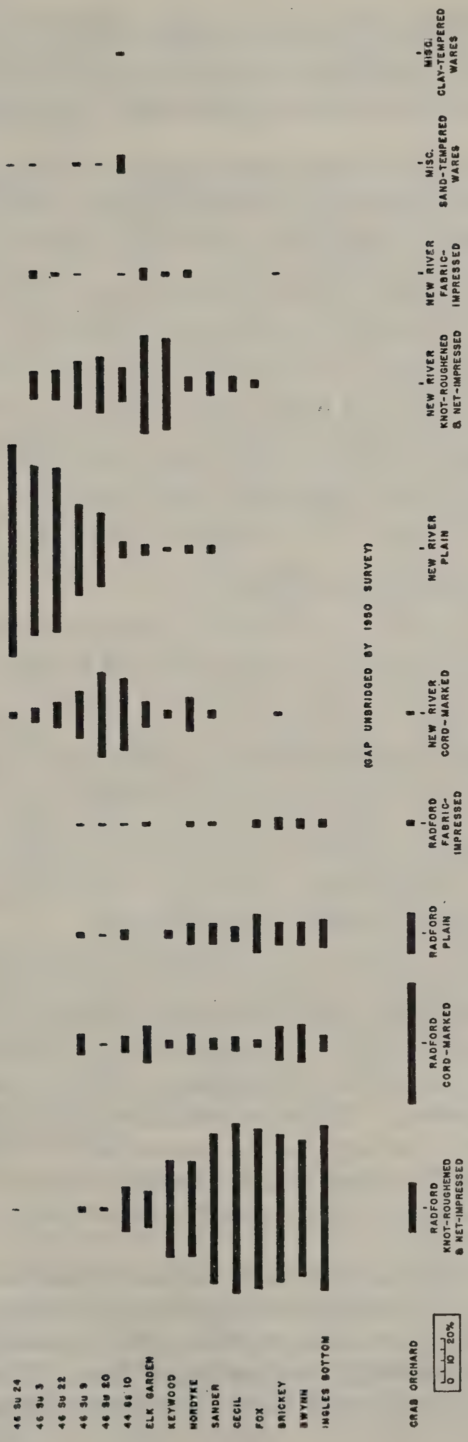

FIGURE 19.—Seriated pottery type sequence of the sites of the Allegheny Ceramic Area.

Division as centered around the New River drainage of the western tip of Virginia, the adjoining sections of West Virginia and even possibly the nearby areas of Tennessee and Kentucky, with occasional traces of influence northeastward up some of the large valleys of the Allegheny Mountains.

Before justifying the order of this sequence, it is pertinent to compare the situation more closely with the sequence of sites and pottery trends established in Solecki's analysis of the temper and the surface treatments separately (Solecki, 1949, p. 401). Since this breakdown was the one primarily used by Solecki in establishing his sequence, our pottery types from the area were also separated into a temper and a surface treatment study. Without changing the order of Solecki's sites, i. e., 44–Gs–10 at the bottom and 46–Su–22 at the top, his sites were seriated into our temper sequence. Since independent of each other they had been seriated on the trend of limestone decreasing as shell increased, the two interdigitated well, placing Ingles Bottom and Gwyn sites at the bottom of the sequence with 98.8 percent and 93.5 percent limestone temper, respectively. The top of the sequence includes all of Solecki's West Virginia sites.

Solecki (1949, p. 401) also seriated his sites on surface treatments, getting a different sequence from that based on temper, except for two sites appearing in exactly the same relative positions. Guided by the same trend, his sites and those of this survey were interdigitated. Plain surfaced sherd increased slowly in popularity and then blossomed out, still to be on the increase at the top of the sequence. Net-impressed and roughened (also called knotted fabric roughened by Solecki) declined from a maximum of 98 to 1 percent, while cord-marked surfaces came in slowly, assumed their maximum of 42 to 55 percent in the middle of the sequence and then faded out again.

Although Solecki (1949, p. 402) combined his data from the surface studies and the temper analysis on one chart, he made no further attempt to rearrange the order of his sites. From his study in West Virginia, he concluded that the plain-surfaced, shell-tempered types are more recent in time than net-impressed and knot-roughened limestone-tempered pottery. The same conclusions are derived from the results of this study and apply to the western part of Virginia and the adjoining part of West Virginia, all of which is lumped together into a cultural area designated in this study as the South Division of the Allegheny Ceramic Area.

Unfortunately for this area we do not have the advantage of large projectile-point collections to substantiate the sequence, but the incorporation of Solecki's point data in Holland's discussion (see appendix 2) produces most encouraging supporting evidence. Triangular points furnish close to 46 percent of the projectile-point types in the area, while at Site 46–Su–3 this type represents 38 percent of the material. Such evidence would place the sites in the upper part of the time sequence. This point will be developed in greater detail in the concluding section of the report.

The South Division of the Allegheny Ceramic Area is represented in this survey by sites containing pottery principally of the New River and/or Radford Pottery Series as found in the collections made by Solecki along the New River in West Virginia, and from the following sites in Virginia: Ben, Brickey, Clover Creek, Eggledon Spring, Fox, Gala, Gwyn, Indian Draft, Ingles Bottom, Keywood, one of the collections of the New River Mound area, Saltville, Sander, and St. Clair Bottom. The sites of Buffalo Gap, Ivanhoe, and Linville have pottery collections showing a mixture of types of the Radford and New River Pottery Series with pottery types of the ceramic series typical of the Central and North-Central Ceramic Area, but the location of these sites along the margins of the two ceramic areas helps to explain this admixture.

Examination of the site map (fig. 1) and the Ceramic Area map (fig. 14) would place the Cornett site in the South Division of the Allegheny Ceramic Area. However, of all the collections from the 96 sites this site is the only one which does not conform to any of the Virginia pottery types or series (pl. 23). Although many of the shapes and surface treatments conform closely to the Clarksville Series, the temper and paste differences suggest a totally different cultural group. Some of the general surface treatments conform to the Radford Series, but the rim shapes and temper rule out any relationships. The detailed ceramic analysis of this site is in appendix 1, table 1, but it should be mentioned here that it is not a typical representative of either the North or South Divisions of the Allegheny Ceramic Area. Cornett site shows closer affiliations to the South Central Ceramic Area but still has sufficient differences, such as the presence of good curvilinear complicated stamping, to dissociate it. As best defined, the Cornett site appears to have direct affiliations with some of the North Carolina ceramic complexes, a point to be developed in detail in the comparative section.

THE NORTHERN DIVISION

Although the entire western side of the Alleghenies in Virginia shows ceramic affiliations, there are enough local variations in the pottery from a few sites in the northern part of Virginia to establish the North Division of the Allegheny Ceramic Area. These local variations are best shown in the shell-tempered type, Keyser Cord Marked, and the limestone-tempered type, Page Cord Marked, originally described by Griffin (Manson, MacCord, and Griffin, 1944) from the Keyser Farm site. As already mentioned in the pottery type descriptions the author would like to view these types as variants within the New River and Radford Pottery Series, whose differences are almost wholly limited to certain rim decorations and appliques. This local variation is best expressed by the materials from the Keyser Farm site and the Berryville site with the Marlow Lakes and Buracker sites showing a slight mixture of materials with pottery types from the North-Central and Central Ceramic Area. Since certain of the sherds at the Linville and the Buracker sites are excellent examples of the various pottery types of the Radford and New River Series, without any of the pottery characteristics typical of Keyser Cord Marked or Page Cord Marked, there is some hesitation to establish this area as a totally separate ceramic area. Instead, the northern and southern parts of the Allegheny Ceramic Area are established as subdivisions of a closely related ceramic region with local variations which are probably significant as separate cultural complexes of a more widesweeping cultural pattern.

To summarize, the Allegheny Ceramic Area is typified by two distinct pottery series, the limestone-tempered Radford Series and the shell-tempered New River Series, with the major trend through time of a decline in net-impressed and knot-roughened surfaces on limestone-tempered ware (Radford Net Impressed and Roughened) as these types are replaced by shell-tempered wares with cord marking (New River Cord Marked) and plain (New River Plain) surfaces. The paste features, shape, and associated surface treatments in the various types representing this series are so outstanding and diagnostic that there is little effort in defining the Allegheny Ceramic Area from the other ceramic areas of Virginia. Since there appears to be slight local variations in pottery of the northern (i. e. Page Cord Marked and Keyser Cord Marked of the Keyser Farm site) and that of the southern parts of the Allegheny Ceramic Area, these regions have been designated as subdivisions within the total area.

SOUTH-CENTRAL VIRGINIA CERAMIC AREA

(Fig. 14)

The region of southern Virginia drained principally by the Roanoke, Staunton, and Dan Rivers presents a certain uniformity of pottery types, but with enough irregularities to make it the most difficult ceramic area to define. The survey and excavation work of the River Basin Surveys in the Buggs Island Dam area should eventually solve many of the problems, but until Carl Miller presents these findings in greater detail than his preliminary report (Miller, 1949), tentative conclusions independent of his work will have to be drawn on the limited scope of this survey. The pottery analysis of the excavations at

Fields Island and Clarksville will be discussed first, to be followed by an analysis of the surface collections from other sites in the area. Although Fields Island had sufficient depth of refuse (45 cm.) to permit stratigraphic analysis, the changes in pottery types are unfortunately so slight they offer little or no diagnostic trends. The only outstanding shift is an increase in Clarksville Net and Fabric Roughened in the top levels while Clarksville Cord Marked declines slightly. However, it is felt that the sample is too small to consider this an absolutely proved pottery trend. In our excavations the sterile sand beneath the refuse did not produce any sherds; the stratigraphy found by Coe in previous years (Griffin, 1945) was not duplicated by our diggings. Undoubtedly, our excavations were in a different area from Coe's. All sherds from the site were excellent examples of the Clarksville Series.

The two separate strata cuts in different parts of the Clarksville site show some general conformity (figs. 20, 21), but the differences in percentage occurrences of Clarksville Net and Fabric Roughened are difficult to explain. At Cut 1 going from the lowest level to top, the percentages run 74.2, 65.0, 70.8, 68.3, and 57.9 percent; in Cut 2 from bottom to top they are, respectively, 42.8, 53.6, 42.2, 47.7, and 45.7 percent. These trends suggest a slight time difference in the parts of the site tested by our Cuts 1 and 2. Strata Cut 2 with the larger percentage of Clarksville Cord Marked scattered throughout all levels, a slightly higher amount of Clarksville Combed (up to 20 percent in one level), and a lower percentage of Clarksville Net and Fabric Roughened must be somewhat different in time from Strata Cut 1 where Clarksville Cord Marked is practically nonexistent, and Clarks-

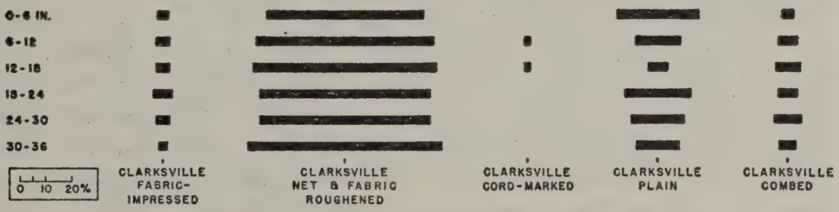

FIGURE 20.—Graphic plot of the pottery types from Strata Cut 1, Clarksville site.

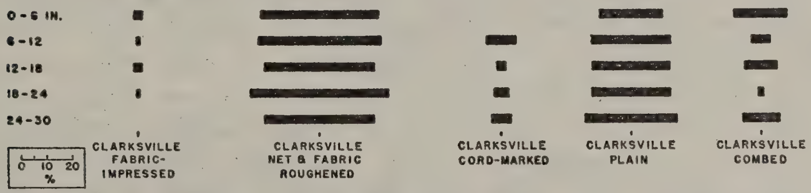

FIGURE 21.—Graphic plot of the pottery types from Strata Cut 2, Clarksville site.

ville Net and Fabric Roughened reach a popularity of 65.0 to 74.2 percent. Therefore, even though the particular levels of each cut do not interdigitate well, there is some suggestion that Cut 2 could be placed underneath Cut 1 to continue the major trends shown separately within each cut. Following these same trends the levels of Fields Island (fig. 22) would correspond more closely with those of Strata Cut 2 at Clarksville because of the higher percentage of Clarksville Cord Marked.

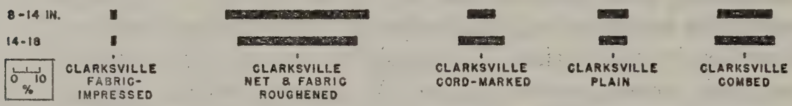

FIGURE 22.—Graphic plot of the pottery types from Strata Cut 1, Fields Island site.

Although Coe's excavations in the Clarksville area suggest three distinct levels of occupation, each with pottery of different surface treatments (Griffin, 1945), our excavations indicated an intermixture of various pottery types in each level. Since all these pottery types were of the same ceramic series, there is no doubt that they were produced by the same cultural group. An analysis of the pottery types of the Clarksville surface collections (table 1) supports the same viewpoint. With the exception of a few sherds showing similarities to Coe's Dan River Focus material and some unclassified specimens, the percentage occurrence of the various types conforms to that in the strata cuts. With only 9.1 percent Clarksville Cord Marked, and 8.9 percent Clarksville Plain, the majority (68 percent of the sherds) are Clarksville Net and Fabric Roughened. In other words, ceramically speaking, the Clarksville site is the result of one major occupation by a group fairly stabilized in its pottery traditions, emphasizing net and fabric-roughened surfaces, and finger pinchings along the necks, rims, or lips. Other sites that conform closely to the Clarksville site are Elm Hill, one of the collections from the New River Mound area, Martinsville, Lynch, and Tisdale sites. In this group the only site outside the geographical center of the South Coastal Ceramic Area is the New River Mound, which is in the geographical region of the Allegheny Ceramic Area.

Several other sites present a mixture of pottery types and series suggestive of two occupations on the same site, or possibly the replacement of one group by another, or the amalgamation of several groups. Leatherwood, West Clarksville, Occaneechi Island 1 and 2, Philpott Bridge, and Bone Bottom sites offer the evidence for such conclusions. None of these sites have a ceramic sample that would assure classification of all the sherds as 100 percent typical of the Clarksville Series.

To be specific, at Bone Bottom site there are a few sherds of the Radford Series (the peripheral location of this site to the various ceramic areas might be an explanation), some examples of an unclassified reddish-orange ware with coarse sand temper and a high percentage of mica in the paste and usually a cord-marked surface; however, the majority of the sherds fall into what appear to be varieties of the various pottery types of the Clarksville Series. Instead of the typical Clarksville temper of coarse river sand with a grayish to gray-tan surface color, the paste is a compact, fine-grained, sand-tempered, light red to rusty red; but the surface treatments of net and fabric roughening with finger pinching along the rim and collar and a few combed interiors are typical only of the Clarksville Series. The same peculiar pottery mixture, with the exception of the Radford Series, occurs at Leatherwood, Philpott Bridge, and Occaneechi Island 1 and 2. West Clarksville is generally in the same category, but it has a larger percentage of the unclassified sherds with a coarse temper, reddish paste, cord-marked (76.5 percent) or fabric-impressed (5.9 percent) surface, and an abundance of mica in the paste; however, 2.9 percent of the sherds in the limited sample from the site are good Clarksville Net and Fabric Roughened. The only other site with a large percentage of Unclassified Series sherds is Occaneechi 1, but here only 28.4 percent of the total sherds are of this series with the remainder representing the Clarksville Pottery Series.

In all the other discussions of each ceramic area, the sites were seriated according to some sequence of decline and increase of certain pottery types; however, two reasons prohibit it in this case: (1) a lack of sites with large sherd collections, and (2) a greater number of sites. Instead of being plotted these data are given in table 1 in appendix 1 for those interested in the details of the pottery-type classifications. However, certain observations are worth mentioning. There is a slight difference in the amount of Clarksville Net and Fabric Roughened at such sites as Fields Island (32.9 percent), Tisdale (41.0 percent), Elm Hill (56.2 percent), and Clarksville (68.0 percent), but the companion wares do not show a significant trend that would explain this difference chronologically. For example, at Fields Island this low percentage is accounted for by 41.4 percent Clarksville Combed, at Tisdale by 19.1 percent Clarksville Plain and 25.7 percent Clarksville Combed, at Elm Hill by 22.4 percent Clarksville Cord Marked. There is no consistency of associated pottery types. The breakdown of the types into surface finish and temper either confuses the issue or adds nothing new to the present analysis. The only significant observation from this approach is one also gained by a study of the pottery types—the predominant surface treatment in the Clarksville Series and in the South-Central Ceramic Area is net and fabric roughened; all other treatments are of minor importance. Although not shown in this type of analysis, the high percentage of internal combing is also more prominent in this pottery series than in any other within Virginia.

What cultural interpretation derives from this occurrence of two distinct pottery series in the South-Central Ceramic Area? Although only a limited number of sites from this area were covered in this survey, and the publication of Miller's survey data on 51 villages and campsites (Miller, 1949) and on his two seasons of River Basin Surveys excavations in the Clarksville area will undoubtedly offer more conclusive details and present data to fill the gaps in our knowledge of South-Central Virginia, certain tentative conclusions are suggested.

The Unclassified Pottery Series shows closer affiliations to the Stony Creek Pottery Series of the Southeastern and Central and North-Central Ceramic Areas of Virginia than to any other pottery from Virginia. This association suggests a generic relationship to the early ceramic horizons of Virginia which were widespread over a large part of Virginia before local specializations began to develop. Under these circumstances, as well as the fact there is no evidence to show the direct outgrowth of the Unclassified from the Clarksville Series, the Unclassified Pottery Series appears to be earlier than the Clarksville Series. The group representing the Clarksville Series is not a direct descendant of the peoples who were responsible for the Unclassified Pottery Series. Since the same levels at some sites produce sherds of both series and the change from one series to another is rather rapid, an amalgamation of two culture groups seems indicated rather than abandonment by the makers of the Unclassified Pottery Series and the reoccupation of the same sites by the producers of the Clarksville Series. If it can be assumed that another group came in and intermixed with, or perhaps conquered, the existing one, instead of developing indigenously, from where might the intruders have come?

Perhaps more light will be shed on the subject after the comparative data for regions outside Virginia are discussed, but here it is pertinent to mention that the only other Virginia pottery series showing a high popularity of knot and net-roughened surfaces, folded-over rims, and recurved jar necks is the Radford Pottery Series of the Allegheny Ceramic Area. Although there are many ceramic differences between the Radford and Clarksville Series, in the light of the above-mentioned relationships, it is not unreasonable to suggest that the South-Central Ceramic Area may have been invaded by a group either coming from or strongly influenced by the southwestern part of Virginia.

In summary, the South-Central Ceramic Area, as defined in this report, covers a region drained by the Roanoke, Staunton, and Dan

Rivers and their tributaries. The principal ceramic features are shown in two pottery complexes representing slight differences in time: an Unclassified Series with a high mica content, sandy, reddish paste, with fine cord-marked and medium to fine fabric-impressed surfaces, and the Clarksville Series with medium to coarse sand temper, gray-tan paste and surfaces, distinctive recurved neck shapes, finger pinchings along the rim or neck, and the majority of the surfaces roughened with a crumpled net or fabric. Evidence suggests that the Clarksville Series is the result of an intruding group who amalgamated with the indigenous group responsible for the Unclassified Pottery Series.

COMPARATIVE ANALYSIS OF SURROUNDING AREAS AND VIRGINIA

Since there is no easy way to summarize the archeological materials of the East which might show possible relationships to the various ceramic complexes and areas in Virginia, the simplest method is to start in the Northeast, working southward into the Southeast and finally ending with a discussion of previous work in Virginia. The final subdivision of this section is a brief evaluation of Holland's projectile point sequence (appendix 2) in relation to the ceramic sequences.

Originally the draft of this comparative section included a long discussion of the various ceramic trends of New York and the adjoining areas of Connecticut and other New England States (Ritchie, 1944; 1951; Rouse, 1947; Smith, 1950; et al.). Critical reading of the manuscript by specialists in this northeastern area demonstrated that since the discussion proved that none of the ceramic materials from these areas, regardless of foci or aspects (the one possible exception might lie in some recently reported steatite-tempered sherds from central New York), were directly related or even closely comparable to any of the Virginia pottery series, there seemed little value in paraphrasing what is best read in the original monographs. Instead, only the briefest comments are given with reference to those few possible examples that show some remote relationship or similar trend to the pottery series of Virginia.

The only pottery series from Virginia which showed possible affiliations, even though remote in most respects, is that from the Potomac area of Virginia at such sites as Potawomeke and Moyaone. The ceramic affiliation, most clearly seen in certain common design motifs and incisions, is not one of direct relationship or diffusion but rather of two areas receiving an influence from a common center. Some eastern archeologists now believe that decorative influences spread out of a common center or region of cultural development in the Middle Delaware River Valley to the north along the east coast where the pottery of the East River Aspect of coastal New York and Connecticut represents the farthest northern spread and to the south along the east coast with the pottery of the Townsend Site of Delaware and the Potawomeke site of Virginia representing the farthest known southward spread from this center. The detailed discussion of both the Townsend site and Potawomeke site appear in a later part of this section, when the comparative data from Maryland and Virginia sites are presented.

If one is to pick out separate aspects of Smith's coastal New York sequence, such as the East River Aspect (Smith, 1950, pp. 116–126), and analyze the trends of the pottery types, surface finishes, and temper within that aspect alone, certain similarities occur with those of Virginia. However, methodologically this is unsound, for it is isolating in time a short time period in New York and explaining the trends within that aspect without reference to the position of this aspect in the total New York cultural picture or what outside influences might have been affecting that particular aspect. For example, it was first thought that the trend from grit tempered to shell tempered, and from cord marked to plain in the East River Aspect (Smith, 1950, fig. 2) clearly demonstrated that throughout time this trend was comparable to the same one shown in coastal Virginia. However, when it is realized that the Windsor Aspect precedes the East River Aspect and shows a similar trend in shell tempering, one gets a bimodal curve for the total picture of coastal New York which is not comparable to the pottery trend in Virginia. In other words, a local situation explains the shift in pottery in New York (East River Aspect is an intrusion into the area from the Middle Delaware River Valley) and therefore its trend cannot be applied to an area as far away as Virginia when there are no linking factors in the interlying areas. From a detailed study of the Northeastern sequences, it is the opinion of the author that local trends of this area cannot be applied to similar trends in the Virginia area when there are no direct linkages in other ceramic traits.

Smith's earliest stage, the North Beach Focus of the Windsor Aspect, is marked by the occurrence of "pottery of a variety identical with the oldest known pottery found in central New York and called Vinette 1" (Smith, 1950, p. 108). In Ritchie and MacNeish's latest definition of pre-Iroquoian pottery of New York State, the diagnostic feature of Vinette 1 is a *complete* interior and exterior cord marking (Ritchie and MacNeish, 1949, p. 100). Here and also in his earlier works Ritchie (1944 and 1946) gives both stratigraphic and seriation evidence for the early occurrence of Vinette 1 type of pottery. Therefore, this unique feature, which gradually gives way to cord-marked and rocker-stamped varieties, has some temporal significance in New York and possibly other regions. Ritchie and MacNeish say:

> The closest affinities of Vinette 1 are with the Fayette Thick type in Kentucky and elsewhere, and with the Red Ocher Type 6 in Illinois, both of which are on the Adena time level, as indicated by stratigraphy in Illinois and seriation of burial traits in Kentucky. The cultural assignment of Vinette 1 pottery is sustained by the total evidence of the other traits and by the fact that the Middlesex culture, with only this double-corded pottery type, has a majority of traits in common with Adena. . . . In the majority of the regions where the type is found (except the Susquehanna River Valley and Virginia, where steatite-tempered sherds may be earlier), it occurs in the lowest ceramic horizons. [Ritchie and MacNeish, 1949, pp. 100, 119.]

With these cultural assignments, and a lack of a pottery type in Virginia identical to Vinette 1 material, the sporadic occurrences of similar techniques need careful examination.

Of all the sherds examined in this survey not a single one could be considered identical in paste or interior cord marking to Vinette 1. The Virginia sherds are impressed only on the lip and rim interior and not on any interior body sherds with either fabric, net, cord-wrapped paddle, or cord-wrapped dowel. In fact, the technique in Virginia suggests that the lip was held with either a piece of fabric or net while the vessel was modeled, leaving the imprint on the inner rim surfaces. The interior impressions are not carefully and neatly applied, but suggest an unintentional or accidental application. The limitation of the impressions to only the inner rim area distinguishes these examples from any direct affiliation with Vinette 1 technique. To further demonstrate the point, examples of interior decoration on Virginia sherds are as follows: A few examples of net impression and roughening on the interior lip of Prince George Net Impressed and Roughened from Pottery Hill site; a fabric-impressed (usually coarse warp, medium close weft) interior lip on a few Prince George Fabric Impressed and Stony Creek Fabric Impressed from Potts site, and 14 examples on Albemarle Fabric Impressed from Virginia, Garth, Warren, Henshaw Shelter, Whippoorwill Hollow, and Coleman sites; and cord-wrapped dowel impressions on the inner lip of Stony Creek Cord Marked, Stony Creek Fabric Impressed, Stony Creek Net Impressed and Roughened, and Albemarle Fabric Impressed from various sites. Therefore, considering all factors, it does not appear that the technique of interior cord or fabric impression or the paste characteristics of any of the pottery types of Virginia are sufficiently close to Vinette 1 types in New York to suggest any close affiliation of the two. The earliest ceramic types in Virginia are neither Vinette 1 nor a related ware.

Ritchie reports that several years ago he found one steatite-tempered sherd from a small site near Geneseo, Livingston County, N. Y., which he attributes to the Point Peninsula 1 Focus of the Early Woodland II Period.[9] The specimen was a rim sherd about 2 inches long, undecorated, apparently from a straight-sided vessel and with a rounded lip. Since the specimen apparently represents either the Marcey Creek Pottery Series of Virginia or some of the various steatite-tempered wares of New Jersey and Pennsylvania which are related to the Marcey Creek Series, and no further sherds have been found in New York State in spite of the extensive excavations in that area, the author would tend to agree with Ritchie that the sherd represents trade into the New York area. The full meaning of the appearance of steatite-tempered wares will come later in this section after all the finds from other areas in the Northeast have been discussed.

New Jersey sites offer a little more encouragement in finding similarities with the pottery series of Virginia. From the descriptive data and photographs in Cross' Archaeology of New Jersey (1941), some of the types from East Point, Indian Head, Salisbury, Goose Island, Wheeler, Riggins, and Koens-Crispin sites are worthy of comment. Although the temper was lumped in discussion because the author felt that "only incidentally can certain kinds of nonplastic inclusions be associated with certain types of ware" (op. cit., p. 180), the listing of tempering materials and the types of surface treatment often suggests that such a statement is not wholly true. For example, the discussion of the pottery types from Salisbury, Goose Island, and Koens-Crispin indicates the use of steatite as well as mica, feldspar, quartz, shale, and sand (op. cit., pp. 60, 66, 89). Since, at these same sites, flat-based, crudely made vessels with a mat impression on the base and usually plain surfaces also occur, it is possible to assume that these vessels were probably always tempered with steatite. To further illustrate, "one steatite-tempered, plain rough sherd [from Goose Island] has a knob applied to the outer surface" (op. cit., p. 66). These flat-based, crudely made, lug-handled vessels resemble in all detail those of the Marcey Creek Series found at various sites throughout Virginia.[10] Not only do the steatite-tempered sherds from New Jersey resemble the Virginia material in shape and paste characteristics, but in both areas they have a similar position as early ceramic styles. At the Ware site in the northern part of Salem County, N. J., plain rough, flat-based pottery heavily tempered with steatite (Koens-Crispin Plain) came from the lowest level (below 12 inches) in the excavations, while above this level there were cord-marked types, and in the uppermost levels a majority of Riggins Plain and Fabric Impressed (McCann, 1948, p. 18; 1950, pp. 315–321).

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[9] Information from William A. Ritchie in letter dated January 7, 1952.

[10] The author agrees with Griffin's observations (1945, pp. 220–246) that the pottery type known as Fayette Thick in the Adena Aspect has certain features, such as lugs, flat bases, and various types of interior and exterior surface treatment that show a decided relationship to early Woodland materials. Although this does not necessarily imply a direct relationship with the steatite-tempered wares of the Marcey Creek Series of the Middle-Atlantic area and Fayette Thick, the close similarity in shape, a comparable time position, and the replacement of these thick, coarse forms by other varieties offers interesting possibilities of cultural affiliations when these wares are better known and defined.

Since the steatite-tempered pottery of Virginia seriates in the lower part of the sequences and in New Jersey is found to be in the earliest pottery levels, there is little doubt that a single group is responsible for this early pottery type in an area extending from New Jersey to Virginia. Data on early horizons in Pennsylvania tend to prove the point. In various articles Witthoft indicates that in the transitional stage between the Early Woodland Period and the Late Archaic and in the Early Woodland Period, the appearance of steatite-tempered pottery, copying the shape of steatite bowls with flat base, oval or rectangular shape, lug handles at each end, and usually with a fabric impression on the base, was common in Pennsylvania (Witthoft, 1949, pp. 10, 11, 18; 1950, p. 11). In fact, he demonstrates that the wares are similar to those in Virginia and in Washington, D. C. (the Marcey Creek Plain Series) by calling the material from Pennsylvania "Washington Steatite-tempered" (Witthoft, 1950, p. 11). This term has been loosely applied and should now be replaced by the published descriptions of Marcey Creek Series (Manson, 1948, and pp. 54–56 of this report) to refer to the early steatite-tempered pottery from Pennsylvania, New Jersey, Virginia, Maryland, and Washington, D. C.

Other pottery types in New Jersey further confirm the affiliation with Virginia. The sherds illustrated on Cross' plate 22 *a*, 1–3, from Salisbury site suggest Stony Creek Cord Marked, and the coarseness of the temper and general surface texture and features of the sherds in plate 32 *a*, 1–10, from Koens-Crispin site, and plate 22 *a*, 5, from Salisbury site (Cross, 1941) suggest varieties of the Prince George Series. If these identifications based on illustrations and description are correct, then the aforementioned New Jersey sites would conform easily to the earliest part of the ceramic sequences in Virginia as shown in the stratigraphic excavations of Potts site and the seriation of sites in the Central and North-Central, Southeastern, and Coastal Virginia Ceramic Areas.

The Riggins site (Cross, 1941, pp. 50–52) offers another interesting bit of comparative data. Here, "Quartz tempering was used in 91 percent of the sherds with sand comprising the temper of most of the remainder" (op. cit., p. 52). Although this type of temper would suggest the Albemarle Series, the photographs and descriptions of the specimens (Cross, 1941, p. 52; 1947, p. 4) do not show any close affiliation because of a distinct rim and lip difference and a high percentage of "cord-wound stick" decoration. However, it is highly possible that the two wares are closely related and this site is a later manifestation of the same cultural group in the upper part of the sequence in the

Central and North-Central Ceramic Area of Virginia. An evaluation of the historic period in southern New Jersey at the Krol site in Salem County suggests the lateness of Riggins pottery.

> The historic period was very short in southern New Jersey, most of the Indians having emigrated westward by the first half of the eighteenth century. . . . One of the contact sites excavated yielded a fair sample of material. This was the Krol site in Salem County. The pottery here was predominately of the Riggins type. Trade pipes of the early type were found in the humus and Riggins pottery also predominated more heavily in the humus than in the lower levels. Apparently the trade pipes were associated with pottery of the Riggins type, a fact which would indicate that this type of pottery survived into the historic period. [McCann, 1948, p. 8.]

As one moves closer to the Virginia area, greater similarities with the Virginia pottery series would be expected, but even some of the well-defined pottery types from Pennsylvania show more differences than similarities. The ceramic features of the Montague and Hanna Foci of the Monongahela Woodland Culture (Butler, 1939, p. 71) are not specifically identifiable with any of the Virginia pottery series—shapes and rim profiles vary considerably. However, certain sherds from the Montague Focus have interesting features suggesting relationships with the northern variants of the New River and Radford Series of the Northern Division of the Allegheny Ceramic Area, as characterized by the pottery types from the Keyser Farm site. The applied knobs on the rim sherds from the Montague site illustrated on plate 7 (ibid., p. 28) are quite similar to those found on Keyser Cord Marked (Manson, MacCord, and Griffin, 1944, pl. 11). The folded-over rims from the same site (Butler, 1939, pl. 8, p. 31) are quite comparable to the rim profiles of the Radford Series and as occasional occurrences in the New River Series. (See pls. 13, 16, 17, and figs. 7, 9.) A further similarity within the New River Series is the fact that the shell-tempered sherds from the Montague site were more frequently plain-surfaced (Butler, 1939, pl. 21). It would appear then that the Monongahela Woodland culture of southwestern Pennsylvania has extremely close ceramic relationships to the Northern Division of the Allegheny Ceramic Area and less direct, although evident, affiliations with the Southern Division of the Allegheny Area.

Butler classifies the whole complex of the cultural traits from the Montague site as Woodland; however, she indicates there is—

> a wave of influence at the Montague site, outstandingly evident in the pottery, that is foreign to the woodland pattern. . . . Notched points and grooved knobs on the rim sherds and rectilinear wide-line incised decoration of the Montague type seem definitely associated with the Fort Ancient culture; applied bands, plain and notched, like rudimentary collars at a vessel rim, tie into Fort Ancient, the Western Iroquois and the Piedmont area of Virginia. . . . We can say, then, that the people of the Montague site were strongly influenced by a Fort Ancient-Iroquoian group, and may have helped to transmit the resemblances noted between Fort Ancient material and that found in Virginia. [Butler, 1939, p. 48.]

Although Butler qualifies her statements by indicating that it is hard to assign tentative dates to such a site, she concludes the section on the Montague site by—

> The best we can say is that the occupation of the Montague site probably occurred at some time during the last five hundred years before the arrival of white settlers on the North Atlantic Coast. [ibid., p. 49.]

Although the Monongahela culture of the Woodland pattern of southwestern Pennsylvania shows some close relationships to the Northern Division of the Allegheny Ceramic Area of Virginia, other of the major cultural groups of Pennsylvania show little or no resemblances to the Virginia Pottery Series, but instead have closer affiliations to the Owasco and Iroquoian cultures of the North. No true Iroquois or related Iroquois pottery was found in the sherds handled in the present survey. This would not preclude their presence in Virginia, but since the sites of the survey reported herein cover a major part of the State, with a wide variety of pottery types represented by tens of thousands of sherds, the author does not think that Iroquois pottery is in Virginia in any quantity.

Another pottery complex defined for Pennsylvania is the material from around Philadelphia from such sites as the Lenape Rock Shelters near Broomall, which have been classified as—

> . . . a collection of artifacts tied in archeologically to the Red Valley focus of the Coastal aspect of the northeastern phase of the Woodland pattern and historically to the Lenni Lenape or Delaware Indians. . . . The Broomall shelters can also at present be considered typical of the late Coastal Algonkian culture of this area. [Butler, 1947, pp. 252–253.]

Since it is not within the scope of this report to argue the accuracy of ethnological identifications of archeological horizons, but rather to compare the ceramic complexes of other areas with those defined for Virginia, it is merely pertinent to note here that without actual examination of the sherds from the site, but based solely upon the meager published data, this material appears to the author to be more closely related to the Northeastern area than to Virginia or the Southeast. The closest similarity comes with the ceramic complex defined as Potomac Creek, the result of a late influx along the Virginia coast and not directly related to the more basic and abundant pottery series of the Virginia area. However, if the Broomall shelters represent two brief occupations, widely separated in time, as is thought by many Eastern archeologists, the latter occupation would apply to the same cultural influence which also affected the Potomac Creek complex in Virginia and the other one to one of the earlier pottery complexes of the area.

Much of Maryland archeological information is still in manuscript form or published as preliminary notes or abstracts. Since most of the Maryland sherds were available for reexamination at the United States National Museum, without making an exhaustive study, a sufficient number were checked to see how closely they fit into the Virginia Pottery Series. Disregarding, for the moment, any specific pottery-type names, which recently might have been applied to Maryland pottery samples, a comparison of the published data on the Hughes site, in Montgomery County, Md. (Stearns, 1940, figs. 1, 2; pl. 2, figs. 1, 2) refers to the shell-tempered New River Pottery Series of the Allegheny Ceramic Area rather than the shell-tempered Chickahominy Series of the Coastal Virginia Ceramic Area. Specifically, most of the shell-tempered sherds appear to conform to Keyser Cord Marked as defined by Griffin (Manson, MacCord, and Griffin, 1944) from the Keyser Farm site in the Shenandoah Valley of Virginia. By its geographical location the Hughes site could fall conveniently into either the Allegheny or the Central and North-Central Ceramic Areas of Virginia. Most of the sherds suggest the major occupation is by a group representing the ceramic traditions of western Virginia; however, the proximity of the boundaries of these two ceramic areas could easily explain an overlap of occupation and therefore account for the presence of a sherd which Stearns states was the only one of its kind found at the Hughes site (his pl. 3, fig. 1–c). The sherd is tempered with crushed quartz and is a typical representative of the Albemarle Series.

A further study of materials from sites along tidewater Maryland (Stearns, 1943) offers interesting comparative data to suggest that the Coastal Ceramic Area of Virginia could easily be extended northward in the same curve to embrace the Chesapeake Bay. For those interested in the detailed ceramic comparisons of Stearns' tidewater Maryland sites and the pottery in the Virginia study, the following plate references in Stearns' report of 1943, verified by inspection of specimens in the United States National Museum when available, are correlated with this study. Sherds from Maryland sites which are good examples of the shell-tempered Chickahominy Series and its various subtypes are as follows: (1) Potts Net Impressed and Roughened—Booby Bar site, plate II, 9–17, 19–20, 23–25; Rocky Point site, plate V, 10–12, 16, 18–20, 22–23; Fort Smallwood site, plate VIII, 3–17, 21 (compare with the Virginia sherds illustrated herein, pl. 8, *f–i*). (2) Chickahominy Fabric Impressed with the subvariety of decorative incisions—Booby Bar site, plate II, 6; Little Round Bay Creek site, plate X, a, plate XI, 1–4, 6–8, 11–13, plate XII, 10; Conowingo site, plate XIII, 8–9; West Bank of Forked Creek site, plate XV, sherds on left; Cocktown Creek site, plate XVIII, 1–3, 5, 8 (compare with the Virginia sherds illustrated herein in pl. 7, *a–i*). (3) Chickahominy Cord Marked—Little Round Bay Creek site, plate XI, 16; Patuxent River sites, plate XVIII, 7 (compare with the Virginia sherds illustrated herein, pl. 8, *a–e*). (4) Potts Cord-wrapped Dowel—West Bank of Forked Creek site, figure 47, plate XVI, 6; Patuxent River sites, plate XVIII, 6 (compare with the Virginia sherds from the Potts site illustrated herein, pl. 9, *f–i*). The examples of sherds of the Albemarle Series from the tidewater Maryland sites are: (1) Albemarle Cord Marked—Booby Bar site, plate II, 1–4, 7–8; West Bank of Forked Creek site, plate XVI, 1, 2, 4, 7; Patuxent River sites, plate XVIII, 13 (compare with the Virginia sherds illustrated herein, pl. 5, *a–n*). (2) Albemarle Net Impressed—Little Round Bay Creek site, plate XI, 14–15; West Bank of Forked Creek site, plate XVI, 5 (compare with the Virginia sherds illustrated herein, pl. 6, *g*).

Without any question these Maryland examples of the Albemarle Series are excellent as to color, texture, size, and nature of the crushed-quartz temper particles, thickness, surface treatments, and rim profiles, and could be lost in any of the sites of the Central and North-Central Virginia Ceramic Area. The sherds tempered with crushed shell are characteristic of the Chickahominy Series of the Coastal Virginia Ceramic Area, even to such peculiar characteristics as the incised V designs or cord-wrapped stick impressions upon a fabric-impressed surface, features typical of many of the upper level sherds of the Potts site. The main difference is the brown to rusty-red color of the Maryland sherds. Although a sufficient number of the Chickahominy Series sherds range from tan to dark-brown hues to make this part of the color range of the sherds, the light-tan variety is more common in the Coastal Virginia Ceramic Area. Such a minor characteristic is not sufficient to rule out direct affiliation with this pottery series when surface finish, rim profiles, temper, shape, and paste features are identical.

A point of interest is the association, in the same sites, of a limited number of crushed-quartz Albemarle Series sherds with a high percentage of shell-tempered Chickahominy Series sherds in the various sites discussed by Stearns. This association did not occur with any degree of consistency in Virginia. Occasionally a few shell-tempered sherds came from one or two of the sites which had sherds predominantly of the Albemarle Series, and occasionally a few of the Stony Creek sherds in the Potts site of Coastal Virginia had sporadic occurrences of angular quartz particles in the paste, but these associations were limited. Unfortunately, the exact percentage occurrence of this mixture is not available in Stearns' report and the highly selected and limited samples in the United States National Museum from the same sites offer no reliable clues, but often his comments are sufficiently detailed to suggest only a minor occurrence of Albemarle Series sherds at most tidewater Maryland sites. For example, at

Booby Bar site some 300 sherds were available, all representing one type (his shell-tempered) except 12 which were tempered with crushed quartz and were a dark reddish brown (Stearns, 1943, corrected copy, pp. 3–4). At Little Round Bay Creek site, of the approximately 500 sherds recovered all sherds are shell-tempered except 6 which are crushed quartz (op. cit., pp. 10–11). This sporadic occurrence of the crushed-quartz type continues throughout Stearns' discussions, except for two sites. Of the some 2,000 sherds from Conowingo site, most are tempered with crushed stone with only a few of crushed shell (op. cit., pp. 13–14). At the west bank of Forked Creek site on the Magothy River, Stearns indicates that most of the sherds from the site proper were shell-tempered, but "just north of excavation A [fig. 45 in Stearns' report] some two hundred sherds,[11] representing 10 or 12 vessels, had been washed out of a shell deposit. . . . These sherds, however, are impressed with cords and contain beach sand [corrected in ink by Stearns to read "crushed quartz"] as tempering material." An examination of the few type samples from this site revealed that without any doubt the crushed-quartz varieties are excellect examples, in all features, of the Albemarle Series, especially Albemarle Cord Marked, and the shell-tempered varieties easily conform to the Chickahominy Series. However, the excavation notes indicate that the large quantity of Albemarle Series sherds are from another part of the site, suggesting the possibility of another zone of occupation. Unfortunately, the data are too scanty to substantiate fully this interpretation of two occupations, but, in the light of the position of the two ceramic traditions throughout time in Virginia, the probability seems good.

One of the excavated Maryland sites, the Shepard site, produces a complex of pottery which would place it in the extended area of the Central and North-Central Ceramic Area because of its high percentage of pottery of the Albemarle Pottery Series. The site report is not published, but the results of the excavations and pottery analysis of 953 potsherds were examined in manuscript form (Schmitt and Slattery, MS.). The pottery is classified into 885 (94 percent) Shepard Cord Marked (a crushed-quartz or crushed-igneous-rock temper with a reddish-brown surface color comparable, except for a greater elaboration or rims, to Albemarle Cord Marked), 8 Page Cord Marked, 16 Keyser Cord Marked, 1 Popes Creek Net Marked, and 43 Unclassified. From the standpoint of the site's location, it is within a half mile of the Hughes site. As already indicated (p. 120), the Hughes site by its ceramic types appears to be representative of the Allegheny Ceramic Area. Since these two areas have a common boundary in this general region it is not peculiar, then, to find that the Shepard site represents the upper part of the seriated sequence for the Central and North-Central Ceramic Area at a point of time when the Albemarle Pottery Series is the most popular pottery. Schmitt and Slattery conclude that the Shepard site is pre-European and fits into what could be called a Montgomery Focus including other Piedmont sites, with the Hughes and Keyser Farm sites fitting into a later focus which can be designated as the Luray (Schmitt and Slattery, MS.). Although not wishing to give the sites absolute dates any more than is attempted in this study, Schmitt and Slattery nevertheless suggest that the occupancy of the Shepard site falls into the latter half of the 15th and first half of the 16th centuries, with the Keyser Farm site partially overlapping the Shepard site but extending until 1575, and the Hughes site coexistent with the later occupation of the Keyser Farm site and probably approaching 1600 (Schmitt and Slattery, MS.).

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[11] A red-ink corrected entry below this paragraph reads, "Altogether about 6–700 sherds of this type were found" (op. cit., p. 21).

Without making an exhaustive study of Maryland ceramics similar to the one just concluded for Virginia, there is sufficient evidence to suggest that the Coastal Virginia Ceramic Area extends northward and includes tidewater Maryland, while the Central and North-Central Virginia Ceramic Area also extends northward, with its boundary adjacent to the Coastal Area. The scope of this paper does not permit the exact definition of these ceramic areas in Maryland, but the comparative ceramic data, without any doubt, demonstrates their further areal distribution northward outside the limits of Virginia. The open lines of these zones on the Virginia Ceramic Area map (fig. 14) have been carried beyond the State boundary to suggest that they had a northward extension. The fact that these areas are adjacent to each other, both in northern Virginia and in Maryland, might easily explain the minor occurrence of Albemarle Series sherds in an area predominantly of the shell-tempered Chickahominy Series.

Another important Maryland site is Popes Creek, excavated and described by Holmes (1903). Fortunately, most of the actual sherds upon which Holmes based his statements were available in the United States National Museum collections. Although they were not studied in great detail, a limited examination gave the author a feel for the material in relationship to the pottery types of Virginia, unobtainable from the description alone. With the exception of the rusty-brown color and a smaller amount of rounded pebbles temper, other features of the ware correspond closely to the Prince George Series of Virginia. The extreme difference in color between most of the sherds from Maryland and many of those from Virginia, which appear identical in certain other ceramic features, would suggest the cause as a local difference in clays. The point could stand intensive study. The crudity, the irregularity, and the grossness of the body walls, and the net-impressed exteriors of Popes Creek pottery all compare favorably with Pottery Hill Net Impressed and Roughened, a ware most common in the Coastal Virginia Ceramic Area. The interior combing or scraping is on the majority of the Popes Creek sherds, but occurs in only about 10 percent of Pottery Hill Net Impressed and Roughened; however, the techniques in both types are identical. Temper is characteristically large to medium, rounded pebbles intermixed with coarse sand in the Virginia pottery type, whereas in Popes Creek ware Holmes describes the paste as "highly silicious, and is tempered very generally with quartz sand, some grains or bits of which are very coarse" (op. cit., p. 153). Examination of the Popes Creek specimens in the United States National Museum verifies the coarseness of the temper, but also reveals the occurrence of some larger, rounded pebbles, identical with the temper characteristics of the Prince George Series in Virginia. Therefore, except for these minor qualifications just discussed, Popes Creek pottery of Maryland shows close similarities to the Prince George pottery types of the Coastal Virginia Ceramic Area. If this relationship is granted, then this Maryland pottery type is comparable in time to the early ceramic horizons in Virginia as demonstrated by the stratigraphy at Potts site and the site seriations for coastal Virginia.

Since modern State boundaries have little regard for geographical features or aboriginal cultural divisions, Delaware archeology would be expected to fit into the ceramic features of coastal Virginia and tidewater Maryland. The shell-tempered pottery types outlined for the Townsend site, Lewes, Del., published in abstract form (Blaker, 1950, p. 11), appear to be comparable to the wares found by Stearns in the tidewater sites of Maryland and in part to the Chickahominy Pottery Series of the Coastal Virginia Ceramic Area. If they do show this comparability, some might criticize the use of a different set of pottery names, but the Townsend Series contains far more decorated sherds than were typical of the Virginia material. Color variations in surface treatments, especially net impressed, and slight shape differences of a few of these forms suggested the possibility that there might be local variations worthy of distinction; therefore, lacking complete, published, and fully illustrated descriptions of the Townsend Series, it seemed better to the author to establish separate pottery series for Virginia. If, in the future, more extensive work reveals the absolute identity of the Townsend Series of Delaware and the Chickahominy Series of Coastal Virginia Ceramic Area, then they can be considered synonymous and be combined at that time. Such things as the absence of net impressed and roughened sherds of the shell-tempered series at the Townsend site and yet the high amount of this type of surface finish on shell-tempered pottery at the lower part of the sequence for Coastal Virginia, demonstrated further the advisability of this decision. However, it is suggested that the following pottery types of the shell-tempered Townsend Series are related to the shell-tempered Chickahominy Series: Rappahannock Fabric Impressed to Chickahominy Fabric Impressed, and Rappahannock Incised to the incised variation of Chickahominy Fabric Impressed, which was not broken down into a separate incised type because of lack of sufficient sherds or basically distinct features from the parent type. No relationship, on shape, rim profile, or combination of surface and decorative treatments, was found between the types defined as Townsend Incised Band (Townsend Incised), Townsend Corded Horizontal, and Townsend Herringbone (Townsend Incised and Corded), and any of the pottery types of either the Chickahominy Series or any other pottery series in Virginia. This dichotomy would suggest that Rappahannock Incised and Rappahannock Fabric Impressed are related more basically to each other and to the Chickahominy Series of coastal Virginia than they are related to Townsend Incised Band, Townsend Corded Horizontal, or Townsend Herringbone. If this be the case, then the major cultural relationship of the Townsend site to Virginia archeology would be along one major ceramic tradition (the Rappahannock types of Maryland and the Virginia Chickahominy Series); the latter three types of the Townsend Series must be due to influences from the north, probably out of the Middle Delaware Valley center of development best known from the Abbott Farm site, and independent of the cultural sequence of coastal Virginia. However, certain other minor relationships to the ceramics of Virginia are revealed in the limited quantities of nonshell-tempered pottery of the site.

Associated with the quantity of shell-tempered sherds from the Townsend site there is only a limited percentage of sherds of other varieties. These include what Blaker describes as "a small heterogeneous lot of grit-tempered sherds pertaining to various types, undesignated at present, with the exception of four sherds of Vinette I" (Blaker, 1950, p. 11). Reexamination of these materials in the United States National Museum collections indicates that, although the four above-mentioned sherds are cord-marked on both surfaces, crude, and irregular in body thickness, they are not examples of Vinette I because they are tempered with clay-sherd materials. In texture, crudity of workmanship, color characteristics, firing and temper, they are identical to the miscellaneous clay-sherd tempered sherds from the Potts site. Only the surface treatments vary—the Potts sherds were plain, the Townsend site ones cord marked. The rest of the miscellaneous sherds fall roughly into three Virginia Pottery Series—the Albemarle, the Stony Creek, and the Prince George Series, with Albemarle Fabric

Impressed, Stony Creek Cord Marked, and Prince George Net Impressed and Roughened the most common types represented. Unfortunately, the full significance of these wares at the site is not clear; perhaps the complete Townsend site report will help interpret their meaning. In this study it is pertinent merely to note that wares typical of the Coastal and Central and North-Central Virginia Ceramic Areas are found in Delaware, further suggesting the northward penetration of these areas.

At the time of the preparation of this report, the collections obtained by the late Alice L. L. Ferguson in her excavations of the Moyaone Village site on the south bank of the Potomac just below Piscataway Creek, Md., are under careful restudy and analysis by Mr. Robert L. Stephenson, University of Michigan. Obviously, with this type of ceramic study in progress any remarks referring to the site are highly tentative at this time. However, the author had the privilege of perusing Mrs. Ferguson's original manuscript, notes, photographs, as well as a hasty examination of the sherd collections from the site. From such a superficial examination of the artifacts, it is the author's opinion that several of the ceramic series outlined for Virginia are present in the Moyaone Village site; they are represented by examples of Marcey Creek Series, the Prince George Series, the Stony Creek Series, and a few suggestive of the Chickahominy Series. In addition, the Moyaone site contains a large complex of sherd materials typical of the Potomac Creek materials found at Patawomeke site in Virginia. Since both these sites have historical accounts mentioning their occupation after the time of European colonization, it is fair to observe that at least the Potomac Creek Series is late pottery in this area, probably coming from the north and definitely without local indigenous development, and having a very limited distribution at a few sites along the Potomac River. It must be reemphasized at this point that in the 96 collections in the present study only one had a trace of Potomac Creek Series as known at the Patawomeke site and the latest occupation at the Moyaone site. The publication of the Moyaone material will add much to clarifying this late pottery complex along Coastal Virginia Ceramic Area, introduced into the area on top of the local cultural traditions expressed by the Prince George, Stony Creek, and Chickahominy Pottery Series of the Coastal Virginia Ceramic Area. The viewpoint expressed by Karl Schmitt, "the grouping of Moyaone and Patawomeke into the Potomac Creek Focus, which is a southern expression of the same cultural influences which produced the Owasco Aspect to the North" (Griffin, 1946, p. 93) still appears to the author to be a satisfactory explanation of the late cultural influences affecting the northern part of Coastal Virginia, regardless of what center or point of origin in

New Jersey the northeastern archeologists might be proposing at the present time. Currently, most of these archeologists see the so-called Potomac Creek Focus as further evidence of continued diffusion of the Abbott Farm type of materials out of the Middle Delaware Valley.

Since the published West Virginia archeological data have already been incorporated in the body of the report by utilizing Solecki's material in the seriation of the sites in the Allegheny Ceramic Area, little additional information can be offered here. The Piedmont Virginia Ware (Holmes, 1903, pp. 149–150) from northwestern North Carolina and southwestern Virginia, without any doubt, conforms exactly to our New River and Radford Series, and Holmes' comments on the distribution up and down the Alleghenies are borne out by the more extensive collections of this survey. Holmes predicted the further extent of this ware when he said, "It occurs plentifully on New River, and will no doubt be found to extend down the westward-flowing streams, thus connecting with the little-known groups of northeastern Tennessee, eastern Kentucky, and western West Virginia" (ibid.). Solecki carries the distribution of his wares into similar regions:

> From all accounts, the center of distribution of the type pottery called "Piedmont Virginia" ware by Holmes (1903, p. 149) seems to have its center somewhere in west central Virginia about the region where the origins of the several drainage systems flow down to the Ohio Valley, the Shenandoah Valley, the Tennessee Valley, and the eastern border of the Appalachian Piedmont, with long fingers of distribution down these valleys. [Solecki, 1949, p. 418.]

For the Bluestone and West Fork Reservation, Solecki summarizes the ceramic typology by stating—

> The granular-tempered wares, in the minority, are similar to Holmes' Piedmont Virginia pottery, representing a Woodland manifestation. The shell-tempered pottery most nearly resembles that of the Fort Ancient Aspect. Griffin (1943, pp. 206–209) writes that the Fort Ancient Aspect, a cultural designation for the remains of a seemingly late prehistoric and possibly related aboriginal groups centering in the middle Ohio Valley, occupied to an uncertain extent the kanawha Valley in West Virginia. We are able to demonstrate here on the basis of ceramic and nonceramic typology that aborigines with at least a Fort Ancient Aspect culture had found their way up this part of the New River Valley. The date of this entrance may be comparable to that of the Keyser farmsite, or about 1600. [Solecki, 1949, pp. 419–420.]

Fundamentally, the seriated sequence of the Southern Division of the Allegheny Ceramic Area further substantiates Solecki's conclusions which were based upon a much smaller sample and a more limited geographical area than are embraced in the present survey. The author fully agrees with the interpretations as already set forth by Solecki, even though the exact date of influence is without proof. A check of the actual specimens of Holmes' Piedmont Virginia Ware and an examination of the literature on Fort Ancient cultural material (Griffin, 1943) corroborates his statements. However, not only does there appear to be a movement of Fort Ancient-like cultural traits from the west into Virginia via the New and Kanawha Rivers, but certain net-impressed, fabric-impressed and finger-pinched rims of shell and/or limestone-tempered sherds found atypically in various components of Fort Ancient sites are suggestive of influences in the opposite direction. To be specific, the net-impressed sherds on limestone-tempered pottery from the Proctorville Component (Griffin, 1943, pl. 35, fig. 12), the fabric-impressed and the grooved-paddled and check-stamped sherds from the Madisonville Component (ibid., pl. 76, figs. 1–7; pl. 77, figs. 1–10), and some of the less common types of cord-marked sherds with finger-pinched or finger-punctate rims, check stamping, and rim nubbins from the Fox Farm Component (ibid., pl. 113, figs. 1–12; pl. 116, figs. 1–12), all represent materials atypical of the Fort Ancient Aspect in either Kentucky or Ohio. Although uncommon to Fort Ancient sites these various ceramic features just mentioned are quite typical of certain ceramic areas of Virginia, especially the Northern and Southern Divisions of the Allegheny Ceramic Area. Check stamping is not common in Virginia, but wherever present appears to be an introduction from either South Carolina or eastern Tennessee.

The aforementioned ceramic similarities did not extend beyond the North and South Divisions of the Allegheny Ceramic Area and spill over into eastern or southeastern Virginia. It would appear that without any doubt the Allegheny Mountains served as a cultural border between groups to the east and west. The failure to spread would not only be affected by the mountains themselves, but, probably more important, the mountains provided a natural border, either side of which aboriginal groups were well established. The problem arises: "What is the interpretation of the cultural influences west of the Alleghenies on Virginia?" Instead of a one-way route of everything funneling into Virginia from farther west via the Kanawha and New Rivers, it appears that at about the same time period there was interareal contact causing a strong inpouring of Fort Ancient traits into the Southern Division of the Allegheny Ceramic Area of Virginia at the same time some of the more typical traits of eastern Tennessee were also fed into the southern part of Virginia. While this was going on, typical traits of this part of Virginia were also filtering back into some of the Fort Ancient sites. In addition, there was further Fort Ancient influence in another direction upon the Monongahela Woodland, involving certain parts of eastern Ohio and southwestern Pennsylvania, part of West Virginia, and the Northern Division of the Allegheny Ceramic Area of Virginia. In other words, the three regions of (1) the New and Kanawha Rivers of the southern Alleghenies in West Virginia and Virginia, (2) Fort Ancient of Ohio and parts of Kentucky, and (3) the Monongahela of southwestern Pennsylvania and the Northern Division of the Allegheny Ceramic Area of Virginia could easily form a triangle of closely related cultural complexes, each with a slightly different local development, but sharing in interareal contact at more or less the same time horizon. There is no question that the extensive survey program of the Carnegie Museum of Pittsburgh in the Upper Ohio Valley will add considerable data to an area now so poorly known and yet so vitally important, if our interpretations of interareal influence are to withstand investigation.

Another important problem of our study is the origin of certain distinctive pottery traits typified by the Radford Series and less frequently by the New River Series which cannot be wholly attributed as a part of the interareal exchange of cultural traits between the Fort Ancient and Allegheny areas. The distinctive knot- and net-roughened surfaces of the Radford Series begin fully developed with the Southern Division of the Allegheny Ceramic Area. The problem is further complicated by the appearance of the same type of knot- and net-roughened surface on sherds found in Montana, especially the Ethridge site, Toole County (Wedel, 1951 a), and in Canada. In spite of the surface similarities they are unlike the Virginia wares in all other characteristics. In a recent communication to Dr. Wedel, Dr. MacNeish sent three sherds with the same surface treatment as those from Montana and the Allegheny Ceramic Area of Virginia. The accompanying letter stated, "Sherds similar to these appear to have a wide distribution across northern Manitoba, Saskatchewan, and Alberta."[12] At this stage of our knowledge of archeology of certain parts of North America, the full cultural meaning of this similar surface treatment cannot be fully evaluated. The difference in paste characteristics, rim profile, and vessel shape would suggest that it is impossible to attribute the appearance of this pottery in such widely separated areas to a single case of direct diffusion or migration of one cultural group; the case of independent invention would also be difficult to prove. Since the surface treatment is not common to all the ceramic areas of Virginia but is concentrated in the Allegheny Ceramic Area, and this area shows closer affiliations to the Ohio area than to the rest of Virginia, perhaps some northern route of entry of these traits will ultimately be traced as work continues in Canada. At the moment the question of the cultural meaning of this similarity of surface treatment remains completely unanswered.

Although certain individual items—shell temper, strap handles, round bases, knobs, protrusions and appliques on the rim—of the various sherds and vessels from the New River Series of Virginia and West Virginia (see Solecki, 1949, pl. 6, Nos. 5, 8, 13, 14, 15, 16; Wedel,

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[12] Letter dated November 5, 1951.

1951 b, figs. 1A, 1C, 2A) show a considerable relationship to materials from the Gordon Town site and Fewkes group in middle Tennessee (Myer, 1928), the overall cultural complexes of the two areas are not sufficiently close to suggest direct cultural affiliations. However, a brief study of the cultural complexes of eastern Tennessee reveals some interesting similarities to Virginia ceramic changes through time. The archeological background of eastern Tennessee, as summarized by Lewis and Kneberg (1946), offers a little comparative data that might explain certain of the ceramic influences in the Virginia area. Without reviewing all the problems of Tennessee archeology, it is pertinent to note that upon the Hamilton Component of a limestone-tempered pottery tradition there was a displacement by another group—"a Middle Mississippi people whose culture we have designated as the Hiwassee Island Focus. . . . Pottery was exclusively shell-tempered with a predominance of plain surfaces. Cord-marked surfaces occurred, and the textile-marked salt pan was typical" (Lewis and Kneberg, 1946, p. 9).

Except for a basic temper similarity, a few generalized shapes, and an occasional folded-over rim, the Virginia Radford Series is so unlike the limestone-tempered sherds of the Hamilton Focus sherds of Tennessee, they appear to have only a basic genetic resemblance at best. Lewis and Kneberg (1946, pp. 83–85) indicate that the majority of the Hamilton Focus pottery is cord marked, with plain surfaces next in importance and with only a little fabric or net impressed or roughened. It will be remembered that these latter surface finishes are the primary ones in the Radford Series. However, the three sherds illustrated in their plate 45, Nos. 6, 7, and 8, designated as Hamilton Cord Marked, are suggestive of some of the material classified as "knot roughened" in the Radford Series (see pl. 16, *a–j*), although the rounded lips and slightly recurved or vertical rims with deep bodies and round bases are not the most common form of the Radford Series. One of the predecessors of the Hamilton Focus, the Candy Creek Focus, also typified by limestone-tempered wares, has a higher incidence of folded-over rims and fine, clear, cord impressions, making it more similar to the Radford Series in rim shape and specifically to Radford Cord Marked in surface treatment than most of the examples of the Hamilton Focus. Material earlier than the Hamilton Focus was found in the cave sites and occasionally scattered on surface sites of the Norris Basin, Tenn. Griffin described some of these materials (Griffin, 1938, pp. 255–266) as grit-tempered, mostly limestone which had been crushed, with a check-stamped, fabric-impressed, or cord-wrapped paddle impression. Certain of these sherds (especially the fabric impressed and fabric roughened) as well as some from the rock shelters of eastern Tennessee (Funkhauser and Webb, 1928) show characteristically strong Woodland influences. Therefore, allowing for different local variations, there appears to be enough similarity between the limestone-tempered pottery of the Hamilton and pre-Hamilton (Candy Creek, etc.) Foci in Tennessee and the Radford Series in Virginia and West Virginia to argue for a basic and underlying cultural relationship. If it were not a factor of cultural heritage, why would the people who manufactured the Radford Series pottery insist on using crushed limestone as tempering materials when other substances were readily available in the area? Thus, it appears as if the eastern Tennessee and Kentucky areas have some positive relationship to at least the Southern Division of the Allegheny Ceramic Area of Virginia, offering an additional area to the New and Kanawha Rivers as a source of cultural influence on western Virginia.

The later components of most eastern Tennessee sites have certain characteristics—modeled effigy jars, painted surfaces, and elaborate complicated stamping—which rule out any direct relationships with any of the pottery complexes of the various ceramic areas of Virginia, even though certain basic features of shape, rims, and shell tempering are similar to the New River Series. Since specialists in eastern archeology recognize that the complicated stamped pottery of Tennessee derived at least the idea if not the actual sherds from the South, it is logical to expect that similar types of pottery from South and North Carolina must have the same southern origin because of the complete absence of such a style of surface finish north of Virginia. In fact, in Virginia only five complicated stamped sherds were found in the entire survey and these were limited to the Cornett site in the southwestern tip of Virginia.

When compared with those of Virginia, the North Carolina materials present many interesting ceramic similarities and differences. Although the area has been worked more extensively than Virginia, only a limited amount of the data has been published, and then usually in summary form rather than as complete site reports. The Peachtree Mound and village site in the western extreme of North Carolina presents a ceramic complex which is on the whole totally unrelated to the various ceramic series of Virginia. In other words, these particular pottery types are far more similar to wares of North Carolina, Tennessee, and the Southeast than they are to those of Virginia. Perhaps the reason is contained in the concluding statements in the report: "the Peachtree site is a component in which both Woodland and Mississippi traits occur simultaneously, blended or fused to make a culturally homogeneous site. It has a temporal range from 1830, or thereabouts, back to pre-white contact, and was probably occupied by Cherokee during this entire period . . ." (Setzler and Jennings, 1941, p. 57). However, the authors on previous pages have qualified this classification by saying, "though this site is Cherokee, no generalizations as to the whole of Cherokee culture can be made . . ." (ibid., p. 55). With the exception of the coil appliques around the collar, incised or punctate, found on some of the sherds of the Radford and New River Series, only those sherds from the Cornett site in Virginia seem to show any close affiliation with the complex. As will be remembered, the general pottery features of these sherds did not conform specifically to any of the pottery types in Virginia, but generally the surface treatment and shapes showed some indirect relationship with both the South Central and the Allegheny Ceramic Area. The curvilinear complicated stamped sherds from Cornett site (pl. 23, *a–c*) conform in surface treatment to various sherds and vessels of Ware A of the Peachtree site; however, it is pertinent to note that this style of surface treatment is not merely limited to this part of North Carolina but has such a general southeastern distribution that the importance of such a similarity is not to connect the site directly with Peachtree Mound but rather to indicate that the Cornett site was the result of cultural migration or influences from the South rather than from the northeastern or north-central areas of Virginia. From an examination of Dr. Michael's collection from the Cornett site, including a large number of stone discoidals, polished stone axes, pipes, shell beads, gorgets, and potsherds worked into disks, it is immediately obvious that a wider and more elaborate material culture complex is present than in other parts of Virginia, again suggesting more cultural influences from the Southeast instead of pure Woodland development. From a study of the sherds from Cornett site (pl. 23), especially the decorated ones with punctations, applique coils, complicated and simple stamping, and incision, along with the fabric-roughened and corncob-roughened surfaces, scraping, finger pinchings, thickened and folded-over rims, there is greater similarity between these sherds and certain North Carolina Foci[13] defined by Coe than with the Peachtree material.

Griffin and Coe characterize the Linwood Focus of North Carolina by saying,

> Museum Negatives 8018 and 8019, identified as the Linwood Focus, represent the (pottery of the) Saponi group after they had moved from the Clarksville Area. They moved down within a hundred miles or so of the Catawba, and apparently there was a considerable amount of contact and acculturation with the Catawba. The thickened-rim area, which is present in the Clarksville Focus has continued, but use of annular punctates at the base of the thickened-rim strip are quite distinct from the Clarksville Focus material. There is some continuation of the corncob-impressed and scraped impressions, but there is a considerable increase in the proportions of complicated stamping.[13]

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[13] Personal communication and photographs from Joffre Coe via Dr. James B. Griffin based on material and information now on deposit in the University of Michigan Museum of Anthropology files, July 12, 1951.

It is highly possible then that the Cornett site could fit into this Linwood Focus and actually be a late development of the Clarksville Series. However, a hasty examination of a limited number of Cornett site sherd photographs by Coe did not guarantee the author's identification as Linwood Focus material, which was established from the descriptive data and photographs furnished by Griffin and Coe and a comparison with the actual sherds from Cornett site. Nevertheless, the sherds are more closely related to North Carolina materials than to any of the Virginia pottery series, in spite of a few limited similarities to the Clarksville Series.

To further carry out the argument that the Cornett site of Virginia is more closely related in its ceramic complex to North Carolina than to any of the other ceramic complexes in Virginia, many of the North Carolina sherds in the United States National Museum from the drainages of the Yadkin River, in Swain, Yancey, and Davidson Counties resemble very closely the type of pottery from Cornett site. The limited collections examined showing such affiliations are: U. S. N. M. No. 134709, Ocanaluftee River, Swain County; U. S. N. M. No. 132985, Nunuyo Mound, Swain County; U. S. N. M. No. 87660, Yadkin River Ford, Davidson County. The majority of these sherds show the same fine, compact paste interspersed with minute mica particles, curvilinear stamping, and slightly everted rims so typical of the Cornett site sherds. The full significance of the Linwood Focus and its relationship to southwestern Virginia and other foci from North Carolina will be apparent only after the North Carolina materials have been more adequately studied and published.

Some of the most important items of comparative interest between the various ceramic complexes of Virginia and those of North Carolina are the absence of check stamping in Virginia, except an obvious trade vessel in the Potts site, the rare appearance of curvilinear stamping (5 out of 24,047 sherds examined), and the limited amount of simple stamping in Virginia compared with other types of surface treatment and decoration. On the basis of these factors there appears to be no manifestation in Virginia of the Pee Dee or Hillsboro Foci of North Carolina.[14] The style of check stamping of Hillsboro Focus is similar to that found on the sherds from the Potts site (pl. 21, *g–i*), but the direct, irregular, rounded lip without notches is so unrelated to the Hillsboro rim shapes, which are typically folded over, that the trade influence at Potts site in Virginia probably did not come from as late a horizon as the Hillsboro in North Carolina.

Studies of other miscellaneous sherd collections from North Carolina add considerable information on the relationship of certain pottery types and series in Virginia to those of North Carolina. A large collection from a village site at the mouth of the Rowan River, on

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[14] See footnote 13, p. 132.

Cashoke Creek, one-half mile west of Albemarle Sound, Bertie County, N. C., was loaned to the author by Mr. Asa Gray Phelps. The 1,627 sherds analyzed were classified as typical of the Stony Creek, Chickahominy, and Prince George Pottery Series. The exact tabulation of pottery types from the site is shown in table 1, in appendix 1, but it is pertinent to mention here their general classification: 82 were too eroded to classify; 1,277 (82.6 percent) sherds represent the Stony Creek Series, 221 (14.3 percent) the Chickahominy Series, 36 (2.3 percent) the Prince George Series, and 11 (0.7 percent) were unclassifiable. Without any doubt this complex of sherd materials fits into the upper part of the seriated sequence for the Southeastern Virginia Ceramic Area where the Stony Creek Series reached its fullest development. Study of a North Carolina-Virginia map offers geographical data which easily explain these cultural similarities. The Cashoke site is near the mouth of the Chowan River, which in its headwaters becomes the Meherrin, Nottoway, and Blackwater Rivers and provides a direct link between this part of North Carolina and the Southeastern Virginia Ceramic Area.

Another North Carolina site fitting into the same ceramic complex as the Southeastern Virginia Ceramic Area is a large village on the south side of the Roanoke River east of the town of Weldon, N. C. Besides projectile-point material, two stone ax fragments, a few pipe fragments, the 186 potsherds classify as follows: 175 (94.5 percent) sherds of the Stony Creek Series, 5 (2.7 percent) sherds of the Clarksville Series and 6 (2.8 percent) sherds of the Albemarle Series. A detailed breakdown into pottery types is in table 1, appendix 1. Obviously there is a mixture of cultural influences either by diffusion or trade in this site. The Stony Creek materials are quite typical of the series, especially in the high percentage of simple-stamped sherds; however the six Clarksville Net and Fabric Roughened sherds, based on rim shape, temper, color, and surface treatment, are also good examples of this type from South-Central Virginia Ceramic Area and probably are explained as trade sherds. The same is probably true of the limited number of sherds from the Albemarle Series; however, this type is also known in North Carolina (see pp. 135–136) and is probably a local element of diffusion rather than one coming directly from the Central and North-Central Virginia Ceramic Area by trade. Again the geographical location of the Weldon site along the Roanoke River not far from the Chowan and Meherrin Rivers and also near the limits of the South-Central Virginia Ceramic Complex centered on the Dan and Staunton where they form the Roanoke River around Clarksville, could possibly explain this apparent mixture of pottery from several separate ceramic complexes.

To further the study of distribution and extension of the ceramic areas, the North Carolina sherd collections of the United States National Museum were examined. The following collections are classified as representatives of the pottery types of the Stony Creek Series: U. S. N. M. No. 196467 from Washington, Beaufort County; U. S. N. M. No. 139369 from Currituck Sound, 6 miles north of Kitty Hawk, Dare County; U. S. N. M. No. 378500 from a site between Nags Head and Kill Devil Hill, Dare County; U. S. N. M. No. 390963 from Nags Head, Dare County, having sherds of both the Stony Creek and Chickahominy Series. The distribution of these pottery types along the northeastern coast of North Carolina from the Pamlico Sound northward to Virginia suggests immediately that the South-Central Virginia Ceramic Area can be extended southward along the drainages of the Chowan and lower Roanoke Rivers into North Carolina and the Coastal Virginia Ceramic Area extended along the North Carolina coast at least as far as the Pamlico Sound, and into Horry County, S. C., along its coastline, as typified by sherd materials which closely resemble the Stony Creek Series (Miller, 1950, pp. 254–259).

In the northwestern part of North Carolina a series of steatite-tempered wares offer a problem, for they are in no way directly related to the Marcey Creek Series of Virginia or the steatite-tempered wares found in New Jersey, Pennsylvania, or Maryland. The North Carolina sherds are usually well made and quite regular; although the amount of temper in the mixture is high, the paste has been well kneaded and is quite compact and not friable. The most distinctive difference from Virginia steatite-tempered pottery is the presence of curvilinear, complicated, and simple stamping, and incision and fabric impression. It is not within the scope of this paper to evaluate the role of steatite-tempered wares in North Carolina, but merely to point out that since they have such different characteristics from the steatite-tempered Marcey Creek Series of Virginia, the peoples who manufactured the two wares must be considered different and unrelated.

Certain other pottery characteristics of North Carolina are demonstrated in the sherds of U. S. N. M. No. 84365 from Wilkes County, which have a reddish paste, crushed-quartz temper, exterior surface of net, cord, or fabric marked, and usually scraped interiors. Without question this material is typical of Coe's Uwharrie Focus as defined in the data sheet and photographs sent the author.[15] From the standpoint of Virginia archeology, the most important feature of the North Carolina Uwharrie Focus is the close similarity of the ware to the Albemarle Series in all features except internal scraping. Typically, combing or scraping is not common on the Albemarle Series and occurs only on a very limited number of the sherds, whereas, as Coe stated, the "Uwharrie Pottery is invariably scraped on the interior, or 90 percent of the time . . ." If a local cultural difference could account for this characteristic in North Carolina and its absence in the Central and North-Central Virginia Ceramic Area, then it would be possible to state that the sherds of the Albemarle Series are affiliated with the Uwharrie Focus of North Carolina. From the standpoint of the position of this focus in a time sequence, the 1950 Southeastern Archeological Conference placed it in the A. D. 1300 bracket (Haag, 1951). Although the author does not have any means of assigning actual dates to his cultural sequences at this stage of Virginia archeology but rather views the sites in their relative positions in ceramic sequences, it is interesting to note that the Albemarle Series reaches its peak at the upper part of the sequence for Central and North-Central Virginia, which probably fits quite closely the assigned date in North Carolina.

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[15] See footnote 13, p. 132.

If the Uwharrie Focus shows this relationship with the Albemarle Series then it is difficult to interpret Coe's comment that "The traditional Uwharrie Focus material is Holmes' Popes Creek material and Wilkes County, N. C., specimens."[16] If the A. D. 1300 date is correct, coupled with the fact that Coe and Griffin see the Uwharrie Focus in North Carolina immediately preceding the Dan River Focus, which is presumably 1650–1700, then the previously discussed possible affiliation of Holmes' Popes Creek pottery with the Prince George Series is either an inaccurate identification (see pp. 123–124), or the time factor is grossly different between the two areas. Only extensive work in both regions will ultimately resolve this problem of relationships.

Mention of the Dan River Focus immediately brings up the problem of the relationships of this North Carolina pottery tradition and the Clarksville Series of the South-Central Virginia Ceramic Area. Superficially, the Dan River Focus and the Clarksville sherds appear identical, but closer examination reveals a few distinct characteristics, which have been defined by Coe. The Dan River material has a high percentage of nicked and notched outer lip edges and almost no folded-over and thickened rims in contrast to the Clarksville materials (pls. 10, 11). On the Clarksville Net and Fabric Roughened sherds the surface appears to be beaten or rubbed with a much coarser and wider looped or knotted net than is common on the Dan River materials, and although some incising appears on a few Clarksville Series sherds, the style is not as common as in the Dan River Focus sherds. Since Coe indicates that he has found sherds from both foci mixed together in sites in each area, the suggestion of contemporaneity of the two groups is strong and the intermixture of sherds at each site could be the result of trade. Since the general paste features, shapes, surface treatments vary only slightly from similar basic ceramic characteristics, ceramically speaking, the two areas appear as local developments of a common basic cultural pattern. Again, it is probable that the detailed study of Miller's Clarksville excavations in 1950 and 1951 will resolve this problem.

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[16] See footnote 13, p. 132.

Before closing the comparative sections with a discussion on the literature dealing specifically with the Virginia area, a few comments should be made about the possible relationships of the clay-sherd-tempered pottery from the Potts site with similarly tempered pottery from the Southeast. Although these sherds were examined by Dr. Gordon R. Willey and Mr. Charles Fairbanks, both familiar with southeastern pottery types, they admitted that the limited sample could not be categorized definitely into any types they knew; however, certain features showed a remote resemblance to the Wilmington Series. In spite of this lack of specific identity, it is of some pertinence to note that the highest popularity of clay-sherd-tempered pottery in the Eastern United States occurs in the lower Mississippi Valley south of Cairo, Ill., spreading in a lesser degree up the Ohio River and into the Lower Wabash and at the Hopewellian level up the Mississippi into the St. Louis, Mo., area. The author has identified a few clay-sherd-tempered potsherds from the Townsend site, Md., and a village site near Plymouth, N. C.; the sherds are comparable in all features to the clay-sherd-tempered sherds from the Potts site, Va. Since the place of origin of clay-sherd-tempered ware in North America is not presently known, and it shows a long distribution over a considerable area, the full meaning of its occurrence in Virginia and other Middle Atlantic States will await future work.

In most archeological studies the comparative literature of the area under scrutiny is a large section. Such is not so in this report for several reasons: (1) The present study is limited to the ceramic aspect of Virginia archeology; (2) most of the sherds involved in the published accounts of Holland, Bushnell, Fowke, and others were reexamined, reclassified according to the typology of this report, and the results incorporated in the main body of the study; and (3) the archeological literature on Virginia is sparse. Under these circumstances only a limited amount of additional information is available.

From a concentrated study of the archeology of Albemarle County, Holland defined two preliminary foci, the Whippoorwill Hollow Focus representing the ceramic phase of cultural development in the area, and the Mehring Focus corresponding to the preceramic horizon (Holland, 1949). In the light of the current study there are no contradictory factors to deny the validity of this type of cultural classification; the ceramic and projectile point features of the Whippoorwill Hollow Focus, according to Holland's data and the information of this report place the focus in the upper part of the pottery sequence for the Central and North-Central Ceramic Area (see fig. 18). However, if this type of classification is to be continued along the lines established by

Holland, another focus should be established for the horizon between the preceramic Mehring Focus with its diagnostic stemmed projectile points and the late Whippoorwill Hollow Focus with a high percentage of Albemarle Series sherds. This new, intermediary focus should be typified by a trace of Albemarle Series sherds and a high percentage of Stony Creek Plain and Stony Creek Cord Marked as well as other less abundant pottery types of the Stony Creek Pottery Series. Since the present study is not utilizing the Midwestern Taxonomic Method, this additional focus in the Central and North-Central Ceramic Area will not be named.

Although David I. Bushnell, Jr., was one of the most prolific writers on Virginia archeology, little direct use can be made of his published information, for his data on sherds are too vague for a study of this type. Fortunately, most of his collections were available in the United States National Museum for restudy, and the results have been incorporated directly into this report. Bushnell's emphasis in his published work is on stone artifacts, not pottery, and as a result, many of his conclusions are often erroneously based on an impressionistic interpretation of the crudity of artifact manufacture as an indication of age or cultural distinctions. The main value of his work will come when an effort is made to draw together in a comprehensive study the stone artifacts of Virginia, similar to the type of analysis presented by Holland in appendix 2 on chipped projectile points and blades. On Bushnell's assignment of historical tribes to certain areas of Virginia the author is not competent to judge, for that is the study of an ethnohistorian; however, the results of the ceramic study in this report indicate that the failure to distinguish distinctive ceramic features, diagnostic of separate cultural influences, has resulted in a delineation of tribal boundaries which do not always correspond with the limits of the various ceramic areas.

A similar situation to that in Bushnell's published reports occurs with Fowke's. Since Fowke's collections were also in the United States National Museum, those with any provenience data and potsherds were included in the study and classified. In most cases the pottery samples were small, the associational information completely lacking, and the possibility of high selectivity was great; but enough materials from his mound excavations in the Shenandoah Valley were available to offer some interesting interpretations. All the mounds Fowke described were low and most contained stones around burials. Unfortunately, today practically all signs of any artificial mounds have been erased by extensive cultivation and pot hunting, so that the possibilities of scientific excavation of similar structures are highly limited. From Fowke's excavation technique and notes, it is not possible to determine clearly whether the mounds were used by one or more cultural groups. In other words, the data with the few sherds are so incomplete that in those sites where there are sherds of the Albemarle, New River, and Radford Series mixed together, Fowke's data on the structure of the mound will not permit the separation of the sherds into different occupations of the burial mound. Unfortunately, Fowke's collections contain many rocks, shells, and stone artifacts but only a few pottery fragments. A time difference based on the artifact content, exclusive of pottery, was originally suggested by Fowke, "All other mounds in this county (Page) in which specimens were found contained mica and gorgets, but no beads or shells, while this (Brumback) yielded quantities of the latter, but not a flake of mica nor a gorget, except one rough stone . . ." (Fowke, 1894, p. 53). The suggestion of a time difference of mound occupation also has been suggested by a summary statement of Virginia archeology by Bullen (1950), in which he tentatively draws together the proof of occupational differences in the mounds by means of projectile points, buffalo bones, pipe types, and a different artifact complex. With the small sherd sample available for restudy only a few comments are possible. In the Brumback Mound, with its large amount of beads and shells and no mica or gorgets, the sherds are all of the Albemarle Series, whereas in such mounds as the Indian Draft and Clover Creek excavations sherds of only the Radford and New River Series occur, while at Linville Mound both the Albemarle and Radford Series sherds exist. From our discussions of the ceramic complexes and their areal distribution there is no doubt that more than a single cultural group manufactured the pottery types of these three series. Although a few low mounds are reported from the Central and North-Central Ceramic Area, especially in Fowke's work in Orange County (Fowke, 1894, pp. 33–36) and Jefferson's mound excavation north of Charlottesville (Bushnell, 1930, p. 18), the main concentration of low mounds is to the west of the Blue Ridge Mountains in the region described in this study as the Allegheny Ceramic Area. Besides the complex of nonceramic artifacts which are more reminiscent of cultures to the west and northwest of the area, this last factor of mound concentration in a rather specific geographical zone of Virginia argues for the introduction of the burial mound complex rather than its local development. This was probably the result of expansion of the burial mound complex out of the Ohio and Mississippi Valleys into Virginia, concentrating in the Allegheny Area and confined principally to the cultural groups who made Radford and New River Series pottery. The trait spilled over into the Central and North-Central Area and was utilized to a very limited extent by the group responsible for the Albemarle Pottery Series. It is truly unfortunate that Fowke's extensive excavations offer so little data and sherd material, for then the problem could be totally resolved.

In closing the comparative section, the excellent projectile point study presented by Holland in appendix 2 will be evaluated in the light of the results of the ceramic study. His analysis is significant, for it is the first attempt in Virginia archeology to establish some sort of objective classification of the chipped stone artifacts. Granted, many people have observed differences in point shapes from preceramic to historic sites, but the type distinctions were always somewhat subjective and intangible. By classifying the individual projectile points and larger blades into types and considering these groupings according to a certain range of features, instead of each point as a unique and individual specimen, Holland has been able to reveal measurable trends throughout time in the chipped stone artifacts of Virginia archeology. Alone, Holland's study stands on its own merits, but it corroborates the ceramic sequence so well, a brief mention of these correlations is worthwhile. By looking at the projectile point and blade sequence (see fig. 23) and comparing it with the pottery sequences of the Central and North-Central and Southeastern Ceramic Areas, a remarkable conformity will be noted in the relative positions of the sites in the two seriations. With the exception of the position of Bear Garden site, which is in the lower part of the ceramic sequence and the upper part of the projectile point sequence, the sites in pottery and projectile point studies are in the same relative positions. This discrepancy is probably due to an unusually small sample of chipped artifacts from Bear Garden site. The Graves site plots in the middle of the point sequence and should have a collection of sherds principally of the Albemarle Series with a low percentage of the Stony Creek Series of sherds; however, only one sherd was present. Since this collection was not made by either Holland or Evans, but loaned to them, it is possible that the collector had a decided preference for stone artifacts and ignored the sherd samples. One other discrepancy between the ceramic and projectile point sequences must be mentioned even though the meaning is not clear at the present time. Briarfield site seriates at the bottom of Holland's sequence in his preceramic horizon; however, the site produced large quantities of pottery (fig. 16) of types typical of the Coastal Ceramic Area. But it will be recalled that the admixture of pottery types in the various pits made it difficult to seriate the site into the sequences for that area. (See discussion on pp. 92–93.) However, in the light of the entire study, the author thinks that these differences between the two seriation studies would not invalidate them.

A point of difference between Holland's seriation and the ceramic study is that he was able to seriate the sites from several parts of Virginia into one major sequence, whereas this was impossible in the pottery seriations. Immediately, this suggests that the chipped artifact complex is much less sensitive in short time spans and in limited area distributions than is pottery. Since Holland's sequence conforms rather closely to the generalized trend from stemmed to triangular points from early to historic times in eastern United States, as he points out in his comparative data, it might be possible to derive some temporal information from his sequence to shed more light on the relationship of the Southeastern Ceramic Area with the Central and North-Central Ceramic Area. As pointed out in the pottery discussions, the two areas had a basic underlying ceramic relationship demonstrated with the high percentage occurrence of Stony Creek Pottery Series in the lowest part of the Central and North Central Ceramic Area. In this region the Stony Creek Series gave out in popularity as the Albemarle Series increased at the top of the sequence. In the projectile-point seriation chart there are no sites which had a high percentage of Stony Creek Series pottery above the middle part of the sequence, with all the sites having a high percentage of Albemarle Series pottery at the top of the projectile point sequence. This order suggests the possibility that the upper part of the Central and North Central Ceramic Area sequence (fig. 18) is slightly later than the upper part of the Southeastern Ceramic Area sequence. Lacking at present an absolute time scale for the area, this observation cannot be checked. Holland's data and its seriation should be read in its entirety (see pp. 174–181); the fact that the relative positions of sites on the chipped-artifact sequence and the various ceramic sequences are not grossly altered indicate the value of such independent studies and argues favorably for the use of an objective approach to the study of Virginia archeology.

THE POSITION OF VIRGINIA IN EASTERN ARCHEOLOGY

Since the ceramic areas of Virginia are described in detail and summarized in a previous section, repetition of this analysis seems unnecessary here. Instead, the position of the State as a whole in the aboriginal development of the Eastern United States will be considered in this concluding section.

From the foregoing data and discussion on the pottery complexes of Virginia, one has little difficulty in realizing that aboriginal Virginia does not fit neatly into a package of pure Woodland, good Hopewell, typical Mississippian, or some other cultural manifestation of Eastern archeology. Granted, the various ceramic complexes show closer affiliation to what is commonly called "Woodland" than to any of the other cultural periods of the East, but the ceramic features of a few of the ceramic areas of Virginia showed the results of diffusion and influence from outlying areas.

A detailed analysis of the ceramics of aboriginal Virginia in the previous comparative section indicates that the primary sources of influence came from the west and north—the areas where the basic ceramic connection with Virginia are early and widespread. There was a very late spill-over along the coast of additional cultural factors from the north. Further late influences into Virginia can be traced to other areas. In the Allegheny Ceramic Area, shell tempering, vessel shape, and the small burial mound complex are related to more developed manifestations in Tennessee, Kentucky, Ohio, and West Virginia. Southern influences can possibly be seen in the clay-sherd tempering, appearing briefly in late times in the Coastal Virginia Ceramic Area, although the exact point of origin is as yet unknown. The Uwharrie Focus of North Carolina is closely similar to the Albemarle Pottery Series of Virginia. The small amount of check and curvilinear stamping in some of the late horizons of the southernmost sites in Virginia also points to a southern source of influence. At a very late period when traits are diffusing out of the middle Delaware Valley to the north into coastal New York, the same influences also seem to be pushing south along the east coast, extending down to the Potomac River.

In Virginia, Maryland, New Jersey, and Pennsylvania, there is a widespread and early distribution of pottery varieties typified in Virginia by the fine, sand-tempered wares of the Stony Creek Series, the steatite-tempered wares of the Marcey Creek Series, and the round, gravel-tempered wares of the Prince George Series. With all these types fitting into the earliest part of the Virginia, Maryland, New Jersey, and Pennsylvania sequences, there is a strong suggestion that this area had a common ceramic origin. Then, due to local or regional development, intrusion from the outside, diffusion of ideas without actual displacement of groups, or a combination of all these factors, regional variations set in which not only permit the subdivision of Virginia into several basic ceramic areas, but present local developments in various of the other States just mentioned.

This evidence of influence from northern, western, and southern directions at various points in Virginia prehistory brings into focus the position of this region in the aboriginal development of the Eastern United States. It was a transitional zone between the cultural complexes of the Southeast, the Northeast, and the Ohio areas. Only in late times did the Northeast again affect the Virginia area, when the Middle Delaware Valley culture affected both Coastal New York (East River Aspect) and the banks of the Potomac, where it is manifested in the Potomac Creek wares. At a comparable late period the first wave of diffusion from the cultures of the Southeast was bringing check and curvilinear stamping to the southern edge of Virginia. The major culture complexes of the Ohio penetrated into the Alleghenies only to a limited degree, also in late times, bringing certain pottery traits and a mound complex. Its major ceramic trends, however, show a remarkable stability and little change from earliest to latest periods in some of the ceramic areas, compared with other areas of the East. This is not to say that the ceramic areas of Virginia are without change; such would be a false interpretation of the data and the graphic presentations of this report. It is merely to indicate that when compared to the temendous shifts that occur from one time period to another as manifested in various aspects and foci in the Northeast, the Southeast, and along the Mississippi, the ceramic changes in Virginia occur at a much slower rate. This would possibly argue for lack of external influences, a removal from major routes of diffusion, or internal stability; however, unfortunately the present state of knowledge of Virginia archeology prohibits an absolute statement. Perhaps it is merely due to the present limited knowedge of Virginia archeology that the ceramic traditions of the various ceramic areas appear stable. Only future work will tell.

Before concluding, some comment should be made on the assignment of the conventional eastern archeological periods to the Virginia sequence. Without the helpful supporting data of settlement patterns, architectural details, absolute dating, artifact complexes, the assignment is perhaps more tentative than desired. Nevertheless, in spite of the fact that it is possible this sequence will be greatly modified as more archeological investigations are conducted in Virginia, its formulation appears worthwhile at the moment. For convenience in reference the data are also presented in chart 1.

The lowest phases of the sequences for the Southeastern and the Central and North-Central Ceramic Areas, which were typified by a high percentage of steatite-tempered ware (Marcey Creek Series) and a fine sand-tempered ware (Stony Creek Series) with a majority of the surfaces cord marked, can be assigned to the Transitional and Early Woodland Period (terminology adopted from Griffin, 1946, pp. 37–95), if it is assumed that the spread of the knowledge of pottery-making entered the Middle Atlantic area at approximately the same time it did the rest of the Eastern United States. If for some reason, a slight time lag is involved, then the period assignment would be toward the latter part of this Early Woodland Period. Within each of the ceramic areas of Virginia, the seriation demonstrates changes of popularity of various pottery types, so there is a distinct pottery complex for each area. The Middle Woodland could be assigned to this period of internal change within each region where there is a transition be-

Culture Period	COASTAL CERAMIC AREA	SOUTHEASTERN CERAMIC AREA	CENTRAL AND NORTH-CENTRAL CERAMIC AREA	SOUTH-CENTRAL CERAMIC AREA	ALLEGHENY CERAMIC AREA
EARLY HISTORIC	Potomac Creek Wares	?	?	Clarksville Pottery Series	?
LATE WOODLAND	Chickahominy Pottery Series: High percentage. Especially Chickahominy Fabric Impressed and Sussex Plain.	Stony Creek Pottery Series: Stony Creek Fabric Impressed and Stony Creek Simple Stamped: High percentage. Chickahominy Pottery Series: Trace.	Albemarle Pottery Series: Albemarle Fabric Impressed: High percentage. Stony Creek Pottery Series: Trace only.	Clarksville Pottery Series.	New River Pottery Series: New River Plain: Very high percentage. (Woodland-Fort Ancient mixture) Radford Pottery Series: Radford Knot Roughened and Net Impressed: High percentage.
MIDDLE WOODLAND	Chickahominy Pottery Series: Increasing. Stony Creek Pottery Series: Moderate amount. Prince George Pottery Series: Decreasing.	Stony Creek Pottery Series: Stony Creek Cord Marked giving way to Stony Creek Fabric Impressed.	Albemarle Pottery Series: On the increase. Stony Creek Pottery Series: On the decline.	South-Central Unclassified Pottery Series.	?
EARLY WOODLAND AND TRANSITIONAL	Prince George Pottery Series: Pottery Hill Net Impressed and Roughened: High percentage.	Prince George Pottery Series: Moderate amount. Stony Creek Pottery Series: Stony Creek Cord Marked: High percentage. Marcey Creek Pottery Series: High percentage.	Stony Creek Pottery Series: Stony Creek Cord Marked and Stony Creek Plain: High percentage. Marcey Creek Pottery Series: High percentage.	?	?

CHART 1.—Schematic presentation of a tentative culture sequence for Virginia.

(Based on the various trends of pottery types and series as originally graphed and presented for each separate ceramic area. Details are in the individual charts for each area; only the highlights are presented here. Since no absolute time scale is known for Virginia archeology, the spacing on the chart in no way is meant to suggest length of time for each period.)

tween the pottery characteristics and percentage popularity of types of the lowest (earliest) and uppermost (latest) sites on the seriated sequences. The upper part of the sequences of the Central and North-Central Ceramic Area, typified by a high percentage of crushed quartz-tempered ware (Albermarle Series), especially Albermarle Fabric Impressed, the Southeastern Ceramic Area with a high percentage of fine, sand-tempered Stony Creek Fabric Impressed and a trace of the shell-tempered Chickahominy Series, and the Coastal Virginia Ceramic Area with a high percentage of the Chickahominy Series, all appear to be various local developments or variations of cultures which could be assigned to the Late Woodland and Protohistoric Periods and possibly on into the Early Historic Period. Such sites as the Moyaone and Patawomeke of Potomac Creek belong without any doubt to Early Historic Period. According to Griffin (1946) the Clarksville Pottery Series of the South-Central Ceramic Area fits into the Late Woodland pattern around 1550–1650. If this is the case, then the group responsible for the pottery of this area designated as the South-Central Unclassified Series and a predecessor of the Clarksville Series would possibly be of the Middle Woodland or the early part of the Late Woodland Period. With reference to the Allegheny Ceramic Area, and its relationships to West Virginia and southwestern Pennsylvania, and Tennessee, the limestone-tempered Radford Series is fundamentally an expression of the early part of the Late Woodland Period (definitely post-Hopewellian) and seems to come close and perhaps into Fort Ancient times. The shell-tempered pottery of the New River Series is an expression of a Woodland-Fort Ancient mixture.

Although some of these cultural assignments may prove erroneous as future work concentrates on the Middle Atlantic area, it is not likely that the basic relationships of the sites to one another, the trends of the pottery types and series within each ceramic area, and the general regions of distribution of certain pottery complexes within Virginia will be altered appreciably. In an area so sadly neglected as Virginia, the first major attempt to pull together the pottery of the entire area in one study is obliged to contain some speculations where the supporting data are thin. It is hoped this pottery survey demonstrates that the archeology of Virginia is not as barren as was once believed and that the work will serve as a stepping stone and stimulus for future students of Eastern archeology.

APPENDIX 1

TABLES OF POTTERY CLASSIFICATIONS WITH PERCENTAGE OCCURRENCES OF EACH POTTERY TYPE ARRANGED BY SITES

TABLE 1.—*Pottery type analysis and percentage occurrences of each type for Virginia and North Carolina sites*

[All sites marked with an asterisk are highly selected or mixed and the percentages are therefore slightly misleading. For small collections the percentages are not calculated.]

Pottery series and types	Accotink		Bear Garden		Ben		Berryville		Bone Bottom		Bremo Creek		Briarfield		Brickey		Brockwell 1		Brockwell 2		Buchanan*		Buffalo Gap		Buracker*		Cape Henry		Capron	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Albemarle Series:																														
Alb. Fabric Impr			71	15.7							176	37.5													2					
Alb. Net Impr																									3					
Alb. Cord Marked			42	9.3							73	15.6									23				2					
Alb. Plain			34	7.5							47	10.1																		
Alb. Simple Stamp			6	1.3							10	2.1													2					
Alb. Scraped			2	.4							4	.9																		
Unclassified			5	1.1							3	.6																		
Chickahominy Series:																														
Ch. Fabric Impr	41												16	1.1			1		11	14.7									11	11.7
Potts Net Impr. and Roughened	1												473	32.1					8	10.6							23		1	1.1
Ch. Cord Marked	7												675	45.7					3	4.0							7			
Sussex Plain	6												195	13.2					3	4.0							2		6	6.4
Roanoke Simple Stamped	1																													
Potts Scraped													25	1.7															1	1.1
Potts Cord-Wrapped Dowel													14	1.0																
Unclassified																														
Clarksville Series:																														
Clark. Fabric Impr									2	.5																				
Clark. Net and Fabric Rough	25								281	75.0																				
Clark. Cord Marked	42								14	3.7																				
Clark. Plain	9								30	8.0																				
Clark. Combed	5								2	.5																				
Clark. Corn-Cob Rough																														
Unclassified																														

Marcey Creek Series																														
Marcey Cr. Plain																														
Selden Is. Cord Marked																														
Unclassified																														
New River Series:																														
New Riv. Fab. Impr															1	.8														
New Riv. Knot Rough, and Net Imp																														
New River Cord Marked			1	.2											2	1.6					9				4					
Keyser Cord Marked							90																							
New River Plain			3	.6			2																		1					
Unclassified																							22							
Prince George Series:																														
Pr. Geo. Fabric Impr																	1												1	1.1
Pot. Hill Net Impr. and Rough																	2		16	21.4					2					
Pr. Geo. Cord Marked																	6		16	21.4					2				6	6.4
Pr. Geo. Plain																			1	1.3									1	1.1
Pr. Geo. Simple Stamped																													3	3.2
Pr. Geo. Scraped																														
Unclassified																														
Radford Series:																														
Rad. Fabric Impr															6	4.9														
Rad. Knot Rough, and Net Impr									2	.5					82	67.1														
Rad. Cord Marked					21				17	4.6					19	15.6									5					
Page Cord Marked							116																							
Rad. Plain					1		12		2	.5					12	10.0														
Unclassified																														
Stony Creek Series:																														
Stony Cr. Fabric Impr			87	19.2							79	16.9	37	2.5					1	1.3			12		6				24	25.5
St. Cr. Net Impr. and Rough													24	1.6			2		8	10.6									6	6.4
St. Cr. Cord Marked			81	18.0							44	9.4	6	.4			1		4	5.3	5		1		14				17	18.1
St. Cr. Plain			97	21.4							22	4.7					1		2	2.7									13	13.7
St. Cr. Simple Stamped			14	3.1							6	1.3							2	2.7			1						4	4.2
Rivanna Scraped			4	.9																										
Nottoway Incised																							2							
Unclassified			6	1.3							4	.9	4	.3																
Miscellaneous pottery:																														
Cornett Complicated Stamped																														
Clay-Sherd Tempered																														
South Central Unclassified									24	6.4																				
N. Carolina Linwood Focus																														
Unclassified	2								1	.3			5	.4																
Potomac Creek Series																														
Totals	139		453	100	22		220		375	100	468	100	1,474	100	122	100	14		75	100	37		38		43		32		94	100
Too eroded to classify			81						35		27		13																2	

TABLE 1.—*Pottery type analysis and percentage occurrences of each type for Virginia and North Carolina sites*—Continued

Pottery series and types	Carr's Brook		Cashoke, North Carolina		Catoctin		Chopawamsie Is.		Clarksville		Clover Creek		Coleman		Cornett		Disputanta		Eggledon Spring		Elk Island		Elm Hill		Eppes Island		Ferry Landing		Fields Island		Fox	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Albemarle Series:																																
Alb. Fabric Impr	99	50.7											26	28.3							2											
Alb. Net Impr													3	3.3							3											
Alb. Cord Marked	29	14.9			45								13	14.1							20											
Alb. Plain	41	21.0											13	14.1							6											
Alb. Simple Stamped	3	1.5											7	7.6							3											
Alb. Scraped													2	2.2																		
Unclassified	2	1.1											1	1.1																		
Chickahominy Series:																																
Ch. Fabric Impr			189	12.2													4	2.6														
Potts Net Impr. and Rough			18	1.2													1	.7														
Ch. Cord Marked			3	.2																												
Sussex Plain			10	.6													7	4.6														
Roanoke Simple Stamped			1	.1																												
Potts Scraped																																
Potts Cord-Wrapped Dowel																																
Unclassified					8																						2					
Clarksville Series:																																
Clark. Fabric Impr									51	5.6													41	6.4					6	3.7		
Clark. Net and Fabric Rough									620	68.0													386	60.5					54	32.9		
Clark. Cord Marked									83	9.1													114	17.9					3	1.8		
Clark. Plain									81	8.9													51	8.0					27	16.4		
Clark. Combed									39	4.3													18	2.7					68	41.5		
Clark. Corn-Cob Roughened									10	1.1													6	.9								
Unclassified									3	.3													22	3.5								
Marcey Creek Series:																																
Marcey Cr. Plain																	2	1.3														
Selden Is. Cord Marked																																
Unclassified																																
New River Series:																																
New Riv. Fab. Impr																																
New Riv. Knot Rough and Net Impr																															1	3.5
New River Cord Marked																																
Keyser Cord Marked																																
New River Plain																																
Unclassified																																

Prince George Series:																																
Pr. Geo. Fabric Impr			26	1.7													5	3.2														
Pot. Hill Net Impr. and Rough			10	.6																					3							
Pr. Geo. Cord Marked																	12	7.8							2							
Pr. Geo. Plain																	9	5.8														
Pr. Geo. Simple Stamped																																
Pr. Geo. Scraped																																
Unclassified																											7					
Radford Series:																																
Rad. Fabric Impr																															1	3.5
Rad. Knot Rough and Net Impr																			35												21	72.4
Rad. Cord Marked											156								14												1	3.5
Page Cord Marked																																
Rad. Plain											1								3												5	17.1
Unclassified																																
Stony Creek Series:																																
St. Cr. Fabric Impr	7	3.6	773	50.0									7	7.6			11	7.1			6				6							
St. Cr. Net Impr. and Rough			340	22.0									3	3.3			3	2.0							1							
St. Cr. Cord Marked	9	4.6	143	9.3	35								8	8.7			59	38.3			25				19							
St. Cr. Plain	3	1.5	18	1.2									5	5.4			36	23.3			3											
St. Cr. Simple Stamped			3	.2													4	2.6														
Rivanna Scraped																																
Nottoway Incised																																
Unclassified	2	1.1											4	4.3							13						25					
Miscellaneous pottery:																																
Cornett Comp. Stamped															5																	
Clay-Sherd Tempered Plain																																
South Central Unclassified									24	2.7																						
N. Carolina Linwood Focus															193																	
Unclassified			11	.7													1	.7	10				1	.1					6	3.7		
Potomac Creek Series							80																									
Totals	195	100	1,545	100	88		80		911	100	157		92	100	198		154	100	62		81		639	100	31		34		164	100	29	100
Too eroded to classify	10		82						25				8		11		6						21						8			

TABLE 1.—*Pottery type analysis and percentage occurrences of each type for Virginia and North Carolina sites*—Continued

Pottery series and types	Gala		Garth		Gwyn		Haley's Bridge		Hard-ware		Henshaw Shelter		Hoff-meyer		Hope-well Airport		Hope-well Factory		Indian Draft		Ingles Bottom		*Ivan-hoe		John-son Mill		Key-wood	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Albemarle Series:																												
Alb. Fabric Impr			49	21.2					14	10.4	67	13.5																
Alb. Net Impressed									1	.7	2	.4											9					
Alb. Cord-Marked			57	24.6					13	9.7	220	44.7																
Alb. Plain			25	10.9					6	4.5	82	16.6													1			
Alb. Simple Stamped			3	1.3					2	1.5	1	.2											1		16			
Alb. Scraped									3	2.2	4	.8																
Unclassified			2	.9					2	1.5	7	1.4																
Chickahominy Series:																												
Ch. Fabric Impr													1	.7														
Potts Net Impr. and Rough													13	9.7														
Ch. Cord Marked													8	5.9														
Sussex Plain							11	9.6					35	26.1			1	1.9										
Roanoke Simple Stamped																												
Potts Scraped																												
Potts Cord-Wrapped Dowel																												
Unclassified																												
Clarksville Series:																												
Clark. Fabric Impr																												
Clark. Net and Fabric Rough																												
Clark. Cord Marked																												
Clark. Plain																												
Clark. Combed																												
Clark. Corn-Cob Rough																												
Unclassified																												
Marcey Creek Series:																												
Marcey Cr. Plain									6	4.5																		
Selden Is. Cord Marked																												
Unclassified																												
New River Series:																												
New Riv. Fab. Impr																											2	1.8
New Riv. Knot Rough. and Net Impr																											45	41.2
New River Cord Marked											5	1.0							25								3	2.8
Keyser Cord Marked																												
New River Plain											1	.2															1	.9
Unclassified																											2	1.8

Prince George Series:																												
Pr. Geo. Fabric Impr.							3	2.6																				
Pot. Hill Net Impr. and Rough													3	2.2			2	3.8										
Pr. Geo. Cord Marked							14	12.3					2	1.5			7	13.2										
Pr. Geo. Plain													2	1.5			2	3.8										
Pr. Geo. Simple Stamped															1		6	11.3										
Pr. Geo. Scraped							1	.9																				
Unclassified																												
Radford Series:																												
Rad. Fabric Impr.					2	4.2															18	2.8						
Rad. Knot Rough. and Net Impr.	100	38.8			30	62.5															472	75.3	1				48	44.1
Rad. Cord Marked	142	61.2			8	16.7													25		48	7.6					4	3.7
Page Cord Marked																												
Rad. Plain					5	10.3															79	12.6	2				4	3.7
Unclassified																					3	.5	1					
Stony Creek Series:																												
St. Cr. Fabric Impr.			16	6.9			13	11.4	18	13.4	12	2.4	2	1.5	4		9	17.0										
St. Cr. Net Impr. and Rough			1	.4					4	3.0			22	16.4			5	9.4										
St. Cr. Cord Marked			28	12.1			59	51.8	17	12.8	48	9.8	18	13.5	2		6	11.3										
St. Cr. Plain			40	17.3					42	31.3	17	3.5	26	19.5	9		6	11.3										
St. Cr. Simple Stamped			8	3.6			12	10.5			7	1.4			12													
Rivanna Scraped															1													
Nottoway Incised																	9	17.0										
Unclassified			1	.4					6	4.5	4	.8	2	1.5	7													
Miscellaneous pottery:																												
Cornett Comp. Stamped																												
Clay-Sherd Tempered																												
South Central Unclassified																												
N. Carolina Linwood Focus																												
Unclassified			1	.4	3	6.3	1	.9			16	3.3									8	1.2						
Potomac Creek Series																												
Totals	242	100	231	100	48	100	114	100	134	100	493	100	134	100	36		53	100	50		628	100	14		17		109	100
Too eroded to classify			37				5		20		110		25								14							

TABLE 1.—*Pottery type analysis and percentage occurrences of each type for Virginia and North Carolina sites*—Continued

Pottery series and types	Kicotan		Leatherwood		Linville		Lipscomb		Little Falls		Louisa		Luray		Lynch		Marlow Lakes		Martinsville		Monasukapanough*		New River Mound		Nomini		Occ. Is. 1	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Albemarle Series:																												
Alb. Fabric Impr.					6		22				4		32				31	45.7			56	38.9						
Alb. Net Impr.							1																					
Alb. Cord Marked					2		3		11		5		2				15	22.1			34	23.6						
Alb. Plain							3				3						4	5.9			17	11.8						
Alb. Simple Stamped							2						2								5	3.5						
Alb. Scraped																					1	.7						
Unclassified																	4	5.9										
Chickahominy Series:																												
Ch. Fabric Impr.	35	6.6																										
Potts Net Impr. and Rough	6	1.1																							1			
Ch. Cord Marked	11	2.0																							5			
Sussex Plain	248	47.0																										
Roanoke Simple Stamped	186	35.2																										
Potts Scraped	28	5.3																										
Potts Cord-Wrapped Dowel																												
Unclassified	4	.8																							2			
Clarksville Series:																												
Clark. Fabric Impr.			20	7.6															3				1				6	7.4
Clark. Net and Fabric Rough			174	66.0											2				27				38				11	13.6
Clark. Cord Marked			17	6.5											1				4								12	14.8
Clark. Plain			27	10.2											2				4				1				19	23.4
Clark. Combed																											9	11.2
Clark. Corn-Cob Rough																												
Unclassified			3	1.0											4												1	1.2
Marcy Creek Series:																												
Marcey Cr. Plain							2		2																			
Selden Is. Cord Marked																												
Unclassified																												
New River Series:																												
New Riv. Fabric Impr.																												
New Riv. Knot Rough and Net Impr.																												
New Riv. Cord Marked																												
Keyser Cord Marked																												
New River Plain																												
Unclassified																												

Prince George Series:																												
Pr. Geo. Fabric Impr																												
Pot. Hill Net Impr. and Rough																												
Pr. Geo. Cord Marked																												
Pr. Geo. Plain																												
Pr. Geo. Simple Stamped																												
Pr. Geo. Scraped																												
Unclassified																												
Radford Series:																												
Rad. Fabric Impr																												
Rad. Knot Rough and Net Impr					3																		16					
Rad. Cord Marked																												
Page Cord Marked																												
Rad. Plain																							3					
Unclassified							5																					
Stony Creek Series:																												
St. Cr. Fabric Impr	1	.2							2		13						1	1.5			13	9.0						
St. Cr. Net Impr. and Rough																					1	.7			3			
St. Cr. Cord Marked	6	1.1					3		2		13						3	4.3			7	4.9						
St. Cr. Plain	3	.5					7				2						3	4.3							3			
St. Cr. Simple Stamped	1	.2									3										2	1.4						
Rivanna Scraped																												
Nottoway Incised																												
Unclassified																	1	1.5										
Miscellaneous pottery:																												
Cornett Complicated Stamped																												
Clay-Sherd Tempered																												
South Central Unclassified			23	8.7																							23	28.4
N. Carolina Linwood Focus																												
Unclassified																	6	8.8			8	5.5						
Potomac Creek Series									5		3																	
Totals	529	100	264	100	11		48		22		46		36		9		68	100	38		144	100	59		14		81	100
Too eroded to classify	8		3				6										5										9	

TABLE 1.—*Pottery type analysis and percentage occurrences of each type for Virginia and North Carolina sites*—Continued

Pottery series and types	Occ. Is. 2		Oglesby		Old Ind. Road 1		Old Ind. Road 2		Old Ship-yard		Phil-pott Bridge		Pis-saseck*		Porto-bago		Pottery Hill		Potts [1]		Rich-mond Sites*		Salt-ville		Sander		Scotts-ville		Skinker's Ford	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Albemarle Series:																														
Alb. Fabric Impr			197	27.6																							2	1.4	2	
Alb. Net Impr			10	1.4																							3	2.0	4	
Alb. Cord Marked			142	19.8																							9	5.9	5	
Alb. Plain			79	11.1																							14	9.3	4	
Alb. Simple Stamped			5	.7																										
Alb. Scraped			5	.7																							1	.6		
Unclassified			8	1.1																							3	2.0		
Chickahominy Series:																														
Ch. Fabric Impr					47	8.5	2	1.1	4	2.9			4		13	4.8			331	12.7	6									
Potts Net Impr. and Rough					24	4.3							21		26	9.5			702	26.8	4									
Ch. Cord Marked					2	.4			8	5.7			4		16	5.9	1	.2	346	13.2	3									
Sussex Plain					28	5.0	1	.5	11	7.9			6		36	13.2	4	1.1	219	8.4	3									
Roanoke Simple Stamped																			10	.4										
Potts Scraped																			25	.9										
Potts Cord-Wrapped Dowel																			2	.1	4									
Unclassified									3	2.1					4	1.4			30	1.1										
Clarksville Series:																														
Clark. Fabric Impr	6	6.0									1																			
Clark. Net and Fabric Rough	31	31.0									3																			
Clark. Cord Marked	11	11.0																												
Clark. Plain	29	29.0									5																			
Clark. Combed	15	15.0																												
Clark. Corn-Cob Rough	3	3.0																												
Unclassified																														
Marcey Creek Series:																														
Marcey Creek Plain																	1	.2									18	11.9		
Selden Island Cord Marked					1	.1																								
Unclassified																														
New River Series:																														
New Riv. Fabric Impr																														
New Riv. Knot Rough. and Net Impr																									7	10.6				
New River Cord Marked																							20		2	3.0				
Keyser Cord Marked																														
New River Plain																									2	3.0				
Unclassified																														

Prince George Series:																														
Pr. Geo. Fabric Impr.					7	1.3	2	1.1	3	2.1					1	.4	4	1.1	64	2.6										
Pot. Hill Net Impr. and Rough									20	14.3			2		9	3.3	52	14.7	107	4.1										
Pr. Geo. Cord Marked					33	5.9	21	11.0	15	10.7			3		44	16.2	121	34.6	65	2.5										
Pr. Geo. Plain					10	1.8	6	3.1	10	7.1					19	7.0	8	2.2	17	.8										
Pr. Geo. Simple Stamped					10	1.8	2	1.1											15	.5										
Pr. Geo. Scraped															1	.3			6	.2										
Unclassified															1	.3			9	.3										
Radford Series:																														
Rad. Fabric Impr.																									1	1.5				
Rad. Knot Rough. and Net Impr.																									45	68.2				
Rad. Cord Marked																									3	4.6				
Page Cord Marked																														
Rad. Plain																									6	9.1				
Unclassified																														
Stony Creek Series:																														
Stony Cr. Fabric Impr.			67	9.4	88	15.8	19	10.0	19	13.6			21		1	.3	2	.6	78	2.9	16						2	1.4		
St. Cr. Net Impr. and Rough			6	.8			3	1.6	11	7.9			15		5	1.8	41	11.6	180	6.8	32						4	2.7		
St. Cr. Cord Marked			83	11.6	216	38.8	90	47.3	24	17.2			31		32	11.8	106	30.1	319	12.2	42						38	25.2		
St. Cr. Plain			100	14.0	72	12.9	36	18.9	8	5.7			11		50	18.4	4	1.1	48	1.8	17						54	35.6		
St. Cr. Simple Stamped					11	2.0	4	2.1									5	1.4	1	.1	6									
Rivanna Scraped																			16	.6										
Nottoway Incised					3	.5	2	1.1	4	2.8							1	.2	10	.4										
Unclassified			6	.8											11	4.1					17						3	2.0		
Miscellaneous pottery:																														
Cornett Compl. Stamped																														
Clay-Sherd Tempered																			8	.3										
South Central Unclassified	5	5.0									12																			
N. Carolina Linwood Focus																														
Unclassified			7	1.0	5	.9	2	1.1					11		3	1.1	3	.9	2	.1										
Potomac Creek Series																														
Totals	100	100	715	100	557	100	190	100	140	100	21		129		272	100	353	100	2, 610	100	150		20		66	100	151	100	15	
Too eroded to classify	17		130		40		16										54		62								34			

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[1] Miscellaneous excavations, Blocks A, B, C, F, G; strata cuts tabulated in tables 2, 3, and 4.

TABLE 1.—*Pottery type analysis and percentage occurrences of each type for Virginia and North Carolina sites*—Continued

Pottery series and types	Saint Clair Bottom		Stony Creek 1		Stony Creek 2		Stony Creek 3		Stony Creek 4		Terrapin Neck		Tice		Tisdale		Tye River Forks		Tye River 3		Warren		Weldon, North Carolina		West Clarksville		Whip. Hollow		Whitehall Shelter		Wicomico		Wingina	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Albemarle Series:[1]																																		
Alb. Fabric Impr.													1								31	7.2	2	1.1			26	35.2	62	29.6			126	24.8
Alb. Net Impr.																					3	.7												
Alb. Cord Marked													6				2				21	4.9					18	24.4	49	23.4			82	16.1
Alb. Plain													4				1		2		36	8.3	2	1.1			8	10.7	47	22.5			111	21.8
Alb. Simple Stamped													5				3		2		1	.2	2	1.1			4	5.4	5	2.3			38	7.5
Alb. Scraped																					1	.2					1	1.3	2	1.0			2	.4
Unclassified																					4	.9					3	4.1	3	1.5			10	1.9
Chickahominy Series:																																		
Ch. Fabric Impressed					90	5.5			9	1.6																								
Potts Net Impr. and Rough.									1	.2																								
Ch. Cord Marked																																		
Sussex Plain					20	1.2			9	1.6																								
Roanoke Simple Stamped																																		
Potts Scraped																																		
Potts Cord-Wrapped Dowel																																		
Unclassified																															20			
Clarksville Series:																																		
Clark. Fabric Impr.															13	5.0																		
Clark. Net and Fabric Rough.															105	41.0							5	2.3	2									
Clark. Cord Marked															17	6.6																		
Clark. Plain															49	19.1																		
Clark. Combed															66	25.7																		
Clark. Corn-Cob Roughened.																																		
Unclassified																																		
Marcey Creek Series:																																		
Marcey Cr. Plain																					27	6.2					3	4.1						
Selden Is. Cord Marked																					1	.2												
Unclassified																																		

New River Series:																																		
New Riv. Fabric Impr.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
New River. Knot Rough and Net Impr.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
New River Cord Marked	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Keyser Cord Marked	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
New River Plain	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unclassified	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Prince George Series:																																		
Pr. Geo. Fabric Impr.	---	---	1	1.4	11	.7	---	---	10	1.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pot. Hill Net Impr. and Rough.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pr. Geo. Cord Marked	---	---	3	4.3	9	.6	1	1.8	4	.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pr. Geo. Plain	---	---	1	1.4	3	.2	1	1.8	3	.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pr. Geo. Simple Stamped	---	---	2	2.8	9	.6	---	---	4	.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pr. Geo. Scraped	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unclassified	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2	---	---	---
Radford Series:																																		
Rad. Fabric Impr.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Rad. Knot Rough. and Net Impr.	5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Rad. Cord Marked	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Page Cord Marked	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Rad. Plain	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unclassified	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Stony Creek Series:																																		
St. Cr. Fabric Impr.	---	---	7	10.0	862	53.0	22	40.0	195	35.5	3	---	---	---	---	---	2	---	---	---	27	6.2	42	22.7	---	---	4	5.4	6	2.9	---	---	44	8.7
St. Cr. Net Impr. and Rough.	---	---	---	---	---	---	---	---	8	1.5	2	---	---	---	---	---	---	---	---	---	28	6.4	---	---	---	---	1	1.3	---	---	---	---	---	---
St. Cr. Cord Marked	---	---	29	41.5	79	4.8	4	7.2	90	16.3	13	---	1	---	---	---	---	---	2	---	66	15.2	43	23.2	---	---	2	2.7	4	1.9	---	---	34	6.7
St. Cr. Plain	---	---	16	22.9	299	18.3	11	20.0	48	8.7	---	---	1	---	---	---	7	---	5	---	167	38.6	35	18.9	---	---	4	5.4	19	9.1	---	---	49	9.7
St. Cr. Simple Stamped	---	---	8	11.5	143	8.8	13	23.8	143	26.1	2	---	---	---	---	---	---	---	2	---	8	1.8	55	29.6	---	---	---	---	8	3.8	---	---	4	.8
Rivanna Scraped	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	.5	---	---	---	---
Nottoway Incised	---	---	2	2.8	99	6.1	2	3.6	19	3.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unclassified	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	13	3.0	---	---	---	---	---	---	3	1.5	2	---	8	1.6
Miscellaneous pottery:																																		
Cornett Compl. Stamped	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Clay-Sherd Tempered	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
South Central Unclassified	---	---	---	---	---	---	---	---	---	---	---	---	---	---	7	2.6	---	---	---	---	---	---	---	---	66	---	---	---	---	---	---	---	---	---
N. Carolina Linwood Focus	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Unclassified	---	---	1	1.4	5	.2	1	1.8	7	1.3	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Potomac Creek Series	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Totals	5	---	70	100	1,629	100	55	100	550	100	26	---	18	---	257	100	16	---	13	---	434	100	186	100	68	---	74	100	209	100	24	---	508	100
Too eroded to classify	---	---	4	---	52	---	3	---	34	---	---	---	---	---	---	---	---	---	---	---	200	---	---	---	---	---	---	---	55	---	110	---	106	---

TABLE 2.—*Pottery types from various levels of Block D–E, Potts site*

Pottery series and types	Occurrence of pottery types at 3-inch levels of Block D–E																	
	28—25		24-23-22		21-20-19		18-17-16		15-14-13		12-11-10		9-8-7		6-5-4		3-2-1	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Chickahominy Series:																		
Chick. Fabric Impr.	----	----	3	6.6	5	5.6	8	6.3	11	7.4	21	13.3	29	20.3	23	28.1	3	----
Potts Net Impr. and Rough	2	----	5	11.2	16	17.8	27	21.3	14	9.4	20	12.6	6	4.3	1	1.2	3	----
Chick. Cord Marked	----	----	1	2.2	9	10.0	15	11.8	18	12.0	14	8.8	9	6.4	5	6.1	3	----
Sussex Plain	----	----	4	8.8	6	6.8	23	18.1	27	18.0	21	13.3	44	31.2	17	20.7	4	----
Roanoke Simple Stamped	----	----	----	----	----	----	----	----	1	.6	----	----	2	1.4	1	1.2	1	----
Potts Scraped	----	----	1	2.2	5	5.6	1	.7	----	----	1	.6	1	.6	----	----	1	----
Potts Cord-Wrapped Dowel	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Unclassified	----	----	1	2.2	1	1.1	----	----	2	1.3	3	1.9	1	.6	2	2.4	----	----
Stony Creek Series:																		
St. Cr. Fabric Impr.	1	----	2	4.5	4	4.4	3	2.4	4	2.7	2	1.3	8	5.7	6	7.3	1	----
St. Cr. Net Impr. and Rough	1	----	4	8.8	7	7.8	6	4.7	20	13.3	22	13.9	4	2.8	----	----	6	----
St. Cr. Cord Marked	2	----	5	11.2	19	21.0	12	9.5	26	17.3	33	20.9	15	10.6	7	8.6	1	----
St. Cr. Plain	----	----	2	4.5	3	3.3	8	6.3	2	1.3	4	2.5	7	4.9	11	13.4	3	----
St. Cr. Simple Stamped	----	----	----	----	----	----	----	----	2	1.3	----	----	----	----	1	1.2	----	----
Rivanna Scraped	----	----	----	----	----	----	----	----	1	.7	----	----	1	.6	----	----	----	----
Nottoway Incised	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Unclassified	----	----	1	2.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Prince George Series:																		
Pr. Geo. Fabric Impr.	----	----	3	6.6	2	2.2	4	3.2	1	.7	2	1.3	3	2.1	----	----	----	----
Pot. Hill. Net Impr. and Rough	----	----	1	2.2	9	10.0	6	4.7	8	5.3	7	4.5	1	.6	3	3.7	5	----
Pr. Geo. Cord Marked	----	----	----	----	1	1.1	6	4.7	11	7.4	5	3.2	8	5.7	4	4.9	----	----
Pr. Geo. Plain	1	----	----	----	1	1.1	7	5.6	2	1.3	1	.6	1	.6	1	1.2	----	----
Pr. Geo. Simple Stamped	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Pr. Geo. Scraped	----	----	----	----	1	1.1	----	----	----	----	----	----	----	----	----	----	----	----
Unclassified	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Marcey Creek Series:																		
Marcey Creek Plain	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Clay-Sherd-Tempered	----	----	11	24.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Unclassified: Bold Check Stamped	----	----	1	2.2	1	1.1	1	.7	----	----	2	1.3	1	.6	----	----	----	----
Totals	7	----	45	100	90	100	127	100	150	100	158	100	141	100	82	100	31	

TABLE 3.—*Pottery types from various levels of Block H–I, Potts site*

Pottery series and types	Occurrence of pottery types at 3-inch levels of Block H–I																	
	26–25		24–23–22		21–20–19		18–17–16		15–14–13		12–11–10		9–8–7		6–5–4		3–2–1	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Chickahominy Series:																		
Chick. Fabric Impr.			3	3.9	3	1.5	12	5.1	29	18.2	16	32.7	4	8.7	5	17.2	3	9.1
Potts Net Impr. and Rough	4		23	30.4	99	50.0	75	31.9	21	13.2	3	6.1	4	8.7	5	17.2	11	33.4
Chick. Cord Marked	4		1	1.3	3	1.5	12	5.1	10	6.3	2	4.1	3	6.5	1	3.5	4	12.1
Sussex Plain	1		7	9.2	27	13.6	24	10.2	17	10.7	5	10.2	6	13.0	3	10.3	5	15.1
Roanoke Simple Stamped			1	1.3	1	.5	2	.8	3	1.9			5	10.8	2	6.9	1	3.0
Potts Scraped	1		2	2.6	3	1.5	9	3.8	7	4.4					1	3.5	2	6.1
Potts Cord-Wrapped Dowel																		
Unclassified					4	2.0	3	1.2	9	5.7	4	8.1	2	4.4	2	6.9	1	3.0
Stony Creek Series:																		
St. Cr. Fabric Impr.			1	1.3			2	.8							1	3.5		
St. Cr. Net Impr. and Rough	2		14	18.5	15	7.7	23	9.8	10	6.3	2	4.1						
St. Cr. Cord Marked	1		3	3.9	7	3.5	7	2.8	8	5.0	2	4.1			2	6.9		
St. Cr. Plain	1		2	2.6			4	1.7			2	4.1	1	2.2				
St. Cr. Simple Stamped			1	1.3	1	.5			1	.6								
Rivanna Scraped							2	.8	3	1.9								
Nottoway Incised													1	2.2				
Unclassified					2	1.0	1	.4							1	3.5		
Prince George Series:																		
Pr. Geo. Fabric Impr.			1	1.3	4	2.0	3	1.2	5	3.2	1	2.0	4	8.7	3	10.3	3	9.1
Pot. Hill Net Impr. and Rough			12	15.9	15	7.6	35	14.8	14	8.8	5	10.2	6	13.0	3	10.3	1	3.0
Pr. Geo. Cord Marked			2	2.6	2	1.0	14	5.8	15	9.4	3	6.1	6	13.0				
Pr. Geo. Plain	1		2	2.6	1	.5	1	.4	4	2.5	2	4.1	2	4.4			2	6.1
Pr. Geo. Simple Stamped							2	.8										
Pr. Geo. Scraped					1	.5			2	1.3			1	2.2				
Unclassified							1	.4	1	.6	2	4.1	1	2.2				
Marcey Creek Series:																		
Marcey Creek Plain					1	.5												
Clay-Sherd-Tempered			1	1.3	9	4.6	3	1.2										
Totals	15		76	100	198	100	235	100	159	100	49	100	46	100	29	100	33	100

TABLE 4.—*Pottery types from various levels of Blocks J–K–L–M and N, Potts site*

Pottery series and types	Occurrence of pottery types at 3-inch levels of Block J-K-L-M														Occurrence of pottery types at 3-inch levels of Block N									
	24-23-22		21-20-19		18-17-16		15-14-13		12-11-10		9-8-7		[1]6-5-4		20-19		18-17-16		15-14-13		12-11-10		[1]9-8-7	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Chickahominy Series:																								
Chick. Fabric Impr	1	.7	11	2.8	21	5.1	28	8.4	34	18.2	3	6.6	1	----	5	13.2	6	9.5	16	8.9	7	22.7	1	----
Potts Net Impr. and Rough	20	14.4	29	7.2	39	9.3	6	1.8	2	1.1	2	4.5	----	----	4	10.5	23	36.6	68	38.0	4	12.9	3	----
Chick. Cord Marked	3	2.2	19	4.7	29	6.9	19	5.7	8	4.3	3	6.6	1	----	3	7.9	3	4.7	13	7.3	2	6.4	----	----
Sussex Plain	12	8.7	28	7.0	39	9.3	50	15.1	29	15.5	8	17.8	2	----	3	7.9	6	9.5	23	12.9	7	22.7	4	----
Roanoke Simple Stamped	----	----	2	.5	2	.5	5	1.5	21	11.2	3	6.7	1	----	----	----	----	----	----	----	2	6.4	1	----
Potts Scraped	2	1.4	1	.2	2	.5	2	.6	----	----	----	----	----	----	1	2.6	3	4.7	----	----	2	6.4	----	----
Potts Cord Wrapped Dowel	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Unclassified	----	----	7	1.7	10	2.4	10	3.0	14	7.5	2	4.5	----	----	----	----	2	3.1	7	3.9	2	6.4	----	----
Stony Creek Series:																								
St. Cr. Fabric Impr	4	2.9	7	1.7	3	.7	6	1.8	1	.5	2	4.5	----	----	1	2.6	1	1.6	6	3.4	----	----	2	----
St. Cr. Net Impr. and Rough	12	8.7	39	9.8	29	6.9	15	4.5	7	3.7	4	8.9	1	----	3	7.9	4	6.4	9	5.0	----	----	1	----
St. Cr. Cord Marked	11	7.9	22	5.5	13	3.1	16	4.8	7	3.7	3	6.6	----	----	4	10.5	1	1.6	10	5.6	1	3.3	1	----
St. Cr. Plain	4	2.9	15	3.7	10	2.4	13	3.9	9	4.8	1	2.2	1	----	6	15.8	1	1.6	3	1.7	2	6.4	1	----
St. Cr. Simple Stamped	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Rivanna Scraped	----	----	1	.2	----	----	----	----	----	----	----	----	----	----	2	5.3	----	----	----	----	----	----	----	----
Nottoway Incised	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Unclassified	----	----	2	.5	3	.7	2	.6	5	2.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Prince George Series:																								
Pr. George Fabric Impr	3	2.1	10	2.5	----	----	30	9.2	8	4.3	5	11.1	----	----	----	----	----	----	4	2.2	----	----	----	----
Pot. Hill Net Impr. and Rough	53	38.2	172	43.1	150	35.9	89	26.8	18	9.6	4	8.9	1	----	2	5.3	10	15.9	9	5.0	1	3.2	1	----
Pr. Geo. Cord Marked	8	5.7	15	3.8	32	7.6	23	6.9	11	5.9	3	6.6	----	----	----	----	1	1.6	8	4.5	1	3.2	----	----
Pr. Geo. Plain	3	2.1	12	3.0	20	4.9	14	4.2	9	4.8	2	4.5	----	----	1	2.6	1	1.6	----	----	----	----	1	----
Pr. Geo. Simple Stamped	----	----	1	.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Pr. Geo. Scraped	2	1.4	5	1.2	13	3.1	----	----	3	1.6	----	----	----	----	----	----	----	----	2	1.1	----	----	----	----
Unclassified	1	.7	3	.7	3	.7	4	1.2	1	.5	----	----	1	----	----	----	----	----	1	.5	----	----	----	----
Marcey Creek Series:																								
Marcey Creek Plain	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Clay-Sherd Tempered	----	----	----	----	----	----	----	----	----	----	----	----	----	----	3	7.9	1	1.6	----	----	----	----	----	----
Totals	139	100	401	100	418	100	332	100	187	100	45	100	9	----	38	100	63	100	179	100	31	100	16	----

[1] Levels above these depths contained little or no pottery.

TABLE 5.—*Temper and surface finish analysis of Blocks J–K–L–M and H–I, Potts site*

Temper and surface finish	Occurrence of temper and surface finish at 3-inch levels of Block J-K-L-M														Occurrence of temper and surface finish at 3-inch levels of Block H-I											
	22–23–24		19–20–21		16–17–18		13–14–15		10–11–12		7–8–9		[1] 4–5–6		22–23–24		19–20–21		16–17–18		13–14–15		10–11–12		[1] 7–8–9	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Temper:																										
Round pebble	69	50.3	218	54.4	218	52.1	160	48.2	50	26.8	14	31.1	2	----	16	21.3	23	11.6	56	23.8	41	25.8	13	26.5	20	43.6
Medium-fine sand	32	22.3	86	21.5	58	13.9	52	15.6	29	15.5	10	22.2	2	----	21	27.6	25	12.6	39	16.5	22	13.7	6	12.3	2	4.3
Shell	38	27.4	97	24.1	142	34.0	120	36.2	108	57.7	21	46.7	5	----	38	50.1	140	70.7	137	58.4	96	60.5	30	61.2	24	52.1
Clay-sherd	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	1.0	10	5.1	3	1.3	----	----	----	----	----	----
Total sherds	139	100	401	100	418	100	332	100	187	100	45	100	9	----	76	100	198	100	235	100	159	100	49	100	46	100
Surface finish:																										
Fabric impressed	8	5.7	28	7.0	24	5.7	64	19.3	43	23.1	10	22.3	----	----	5	6.6	7	3.6	17	7.3	34	21.4	17	34.7	8	17.4
Net impressed and roughened	85	61.1	240	60.0	218	52.3	110	33.2	27	14.4	10	22.3	----	----	49	64.5	129	65.1	133	56.7	45	28.3	10	20.4	10	21.7
Cord-marked	22	15.8	56	14.0	74	17.7	58	17.4	26	13.9	9	20.0	----	----	6	7.9	12	6.1	33	14.0	33	20.6	7	14.2	10	21.7
Plain	19	13.8	55	13.7	69	16.5	77	23.2	47	25.1	11	24.4	----	----	12	15.8	38	19.2	32	13.6	24	15.2	9	18.4	8	17.4
Simple-stamped	----	----	3	.6	2	.5	5	1.5	24	12.8	3	6.6	----	----	2	2.6	2	1.0	4	1.7	4	2.5	----	----	5	10.7
Scraped	4	2.9	7	1.7	15	3.6	2	.6	----	----	----	----	----	----	2	2.6	4	2.0	11	4.7	9	5.7	----	----	2	4.6
Check-stamped	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Unclassified	1	.7	12	3.0	16	3.7	16	4.8	20	10.7	2	4.4	----	----	----	----	6	3.0	5	2.0	10	6.3	6	12.3	3	6.5
Total sherds	139	100	401	100	418	100	332	100	187	100	45	100	----	----	76	100	198	100	235	100	159	100	49	100	46	100

[1] Levels above these depths contained little or no pottery.

TABLE 6.—*Temper and surface finish analysis of Blocks N and D–E, Potts site*

Temper and surface finish	Block N in 3-inch levels										Block D–E in 3-inch levels													
	19–20		16–17–18		13–14–15		10–11–12		[1]7–8–9		22–23–24		19–20–21		16–17–18		13–14–15		10–11–12		7–8–9		[1]4–5–6	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Temper:																								
Round pebble	3	7.9	12	19.1	24	13.4	2	6.4	2	----	4	8.8	14	15.5	23	18.1	22	14.7	15	9.4	13	9.3	8	9.8
Medium-fine sand	16	42.1	7	11.1	28	15.7	3	9.6	5	----	15	33.3	34	37.7	30	23.6	55	36.6	63	39.9	36	25.5	25	30.6
Shell	16	42.1	43	68.2	127	70.9	26	84.0	9	----	15	33.3	42	46.8	74	58.3	73	48.7	80	50.7	92	65.2	49	59.6
Clay-sherd	3	7.9	1	1.6	----	----	----	----	----	----	11	24.6	----	----	----	----	----	----	----	----	----	----	----	----
Total sherds	38	100	63	100	179	100	31	100	16	----	45	100	90	100	127	100	150	100	158	100	141	100	82	100
Surface finish:																								
Fabric impressed	6	15.8	7	11.2	26	14.5	7	22.5	----	----	8	17.7	11	12.2	15	11.8	16	10.7	25	15.8	40	28.5	29	35.3
Net impressed and roughened	9	23.7	37	58.8	86	47.0	5	16.2	----	----	10	22.2	32	35.6	39	30.7	42	28.1	49	31.0	11	7.8	11	13.3
Cord-marked	7	18.4	5	7.9	31	17.3	4	12.8	----	----	6	13.4	29	32.2	33	26.1	55	36.6	52	32.9	32	22.7	20	24.4
Plain	13	34.2	9	14.2	26	14.5	9	29.0	----	----	17	37.8	10	11.2	38	29.8	31	20.6	26	16.5	52	36.8	19	23.3
Simple-stamped	----	----	----	----	----	----	2	6.5	----	----	----	----	----	----	----	----	3	2.1	----	----	3	2.1	1	1.3
Scraped	3	7.9	3	4.8	2	1.2	2	6.5	----	----	1	2.2	6	6.6	1	.8	1	.6	1	.6	2	1.4	----	----
Check-stamped	----	----	----	----	----	----	----	----	----	----	1	2.2	1	1.1	1	.8	----	----	----	----	----	----	----	----
Unclassified	----	----	2	3.1	8	4.5	2	6.5	----	----	2	4.5	1	1.1	----	----	2	1.3	5	3.2	1	.7	2	2.4
Total sherds	38	100	63	100	179	100	31	100	----	----	45	100	90	100	127	100	150	100	158	100	141	100	82	100

Levels above these depths contained little or no pottery.

TABLE 7.—*Pottery types from various excavations at Briarfield site*

Pottery series and types	Occurrence of indicated types at Briarfield site																Entire site	
	Surface		Pit 1		Pit 2		Pit 3		Pit 4		Pit 5		Pit 6		Pit 8			
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Chickahominy Series:																		
Chick. Fabric Impr.	1	0.5	8	1.6	6	1.5	------	------	1	.8	------	------	------	------	------	------	16	1.2
Potts. Net Impr. and Rough	88	48.6	109	22.2	49	11.9	50	63.4	84	75.0	19	------	30	50.0	22	30.2	473	32.1
Chick. Cord Marked	60	33.2	286	58.3	225	55.0	14	17.7	9	8.2	4	------	18	30.0	46	63.0	675	45.8
Sussex Plain	26	14.4	73	14.7	53	12.9	12	15.2	15	13.5	2	------	9	15.0	2	2.7	195	13.2
Potts Scraped	5	2.8	8	1.6	1	.3	------	------	1	.8	------	------	------	------	3	4.1	25	1.7
Unclassified	1	.5	3	.6	4	.9	3	3.7	2	1.7	1	------	3	5.0	------	------	14	.9
Stony Creek Series:																		
St. Cr. Fabric Impr.	------	------	------	------	37	9.2	------	------	------	------	------	------	------	------	------	------	37	2.5
St. Cr. Net Impr. and Rough	------	------	------	------	24	5.9	------	------	------	------	------	------	------	------	------	------	24	1.6
St. Cr. Cord Marked	------	------	------	------	6	1.5	------	------	------	------	------	------	------	------	------	------	6	.4
Unclassified	------	------	------	------	4	.9	------	------	------	------	------	------	------	------	------	------	4	.3
Unclassified	------	------	5	1.0	------	------	------	------	------	------	------	------	------	------	------	------	5	.3
Totals	181	100	492	100	409	100	79	100	112	100	26	------	60	100	73	100	1,474	100

TABLE 8.—*Pottery types by levels (in inches) from Clarksville, cut 1 and cut 2, and Fields Island, cut 1*

CLARKSVILLE CUT 1

Pottery series and types	0–6		6–12		12–18		18–24		24–30		30–36	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Clarksville Series:												
Clark. Fabric Impr.	2	4.1	2	4.9	2	4.9	3	7.5	1	5.0	1	3.2
Clark. Net and Fabric Rough	26	57.9	28	68.3	29	70.8	24	60.0	13	65.0	23	74.2
Clark. Cord Marked			1	2.4	1	2.4						
Clark. Plain	14	31.1	7	17.1	3	7.3	10	25.0	4	20.0	5	16.1
Clark. Combed	2	4.6	3	7.3	4	9.8	3	7.5			2	6.5
Unclassified	1	2.3			1	2.4			2	10.0		
South Central Unclassified Series					1	2.4						
Totals	45	100	41	100	41	100	40	100	20	100	31	100

CLARKSVILLE CUT 2

Pottery series and types	0–6		6–12		12–18		18–24		24–30	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Clarksville Series:										
Clark. Fabric Impr.	2	3.4	1	1.2	2	3.5	1	1.7		
Clark. Net and Fabric Rough	27	45.7	39	47.7	24	42.2	30	53.6	6	42.8
Clark. Cord Marked			9	11.0	2	3.5	3	5.4	1	7.2
Clark. Plain	14	23.7	25	30.5	17	29.7	17	30.5	5	35.7
Clark. Combed	12	20.4	6	7.3	7	12.3	1	1.7	2	14.3
Unclassified	4	6.8	2	2.3	3	5.3	1	1.7		
South Central Unclassified Series					2	3.5	3	5.4		
Totals	59	100	82	100	57	100	56	100	14	100

FIELDS ISLAND CUT 1

Pottery series and types	8–14		14–18	
	Count	Percentage	Count	Percentage
Clarksville Series:				
Clark. Fabric Impr.	2	1.9	1	1.7
Clark. Net and Fabric Rough	55	54.1	26	45.6
Clark. Cord Marked	11	10.8	10	17.6
Clark. Plain	12	11.7	6	10.6
Clark. Combed	21	20.6	13	22.8
Unclassified	1	.9	1	1.7
South Central Unclassified Series				
Totals	102	100	57	100

APPENDIX 2

AN ANALYSIS OF PROJECTILE POINTS AND LARGE BLADES

By C. G Holland

INTRODUCTION

While Dr. Evans was undertaking his ceramic study he invited me to make a corollary study of the chipped-stone artifacts to determine whether pottery and points bear any relation to one another from a cultural standpoint through time. In this analysis there were 3,055 chipped-stone artifacts, representing 2,922 projectile points and 133 large blades. Only 41 sites are represented in comparison with the 96 sites in Dr. Evans' ceramic study. Unfortunately, from some sites only a single classifiable projectile point was found, whereas a fair pottery sample was available. At such sites chips were often bountiful and in many instances were collected to determine whether some correlations could be made between the rock preference, location of sites, pottery affiliations, and the known projectile points from the area. These chip counts were too sporadic and uneven to be used in the final analysis of this particular study.

Dr. Evans gave me guidance in typology and, as well, discussed at some length the methodological problems and the cultural implications involved. In the Eastern and Midwestern archeological literature there are almost as many classificatory systems as monographs consulted. The main consistency appeared in the basal features, which fell into broad, general categories. The points in this survey were therefore classified into groups with distinctive features so that one category could be recognized from the next. It should be remembered that stratigraphic evidence of change through time in Virginia is meager; therefore, with reliance being placed on thin deposits and surface collections, a classification into types would be the only method which would permit an objective handling of the material. To describe the points from each site as unique individual specimens or in general descriptive terms and then attempt a comparison is burdensome, inadequate, and insensitive to any easy analysis of cultural forces and change. By classifying each point into a specific group with clearly defined features, the occurrence of certain types at specific sites can be visualized easily by means of a percentage basis. The final types were the result of much rehandling, refining, and, occasionally, reclassification.

The types have been given a letter and a descriptive name for ease in tabular and graphic plotting. The names have been culled from the most accepted terminologies in the literature. Type A through Type O are the projectile points. Type N is a catchall for unclassifiable projectile point fragments. The larger forms, sometimes called blades or spear points, and often related in shape but of larger size in all proportions than the projectile point types are lettered from Type P through Type V, with the adjective "large" always preceding the descriptive name. In these larger categories the unclassified fragments are placed in Type V. The type descriptions and reference to their illustrations follow.

DESCRIPTION OF TYPES

TYPE A—SMALL TRIANGULAR

(Pl. 24, *a*)

Overall length: Range, 10–20 mm.; majority, 15–16 mm.

Basal width: Range, 10–16 mm.; majority, 12–13 mm.

Blade: Isosceles or equilateral; several specimens show serrated edges; no incurvate sides; a few specimens show a mild excurvate trend; the angles tend to be acute rather than rounded.

Stem: None.

Base: Predominantly straight; an occasional specimen has an incurvate base of shallow proportions.

Diagnostic features: This type constitutes the smallest points examined in this survey; their diminutive size and form distinguished them from the other triangular forms.

Technique of manufacture: Generally well made by careful, even chipping. As a rule symmetrical although occasionally one side of the blade is longer than the other.

Type of rock: Most commonly, crystal or clear quartz; white quartz next in frequency, followed by chert and quartzite.

Comment: At the Cornett site in southwestern Virginia the use of chert predominates. This variation may be explainable by local natural resources. The length of the points at this site was greater than at other sites, when compared with the width of the base. In the Clarksville area, specimens examined, but not available for statistical typing, were predominantly white quartz with a poor quality of flaking.

TYPE B—MEDIUM TRIANGULAR

(Pl. 24, *b*)

Overall length: Range, 15–23 mm.; majority, 20–21 mm.

Basal width: Range, 15–20 mm.; majority, 17–18 mm.

Blade: Both isosceles and equilateral forms predominate; shallow incurvate and excurvate sides appear; serration is absent; thin blade (less than 5 mm.).

Stem: None.

Base: Shallow incurvate bases appear, but straight bases predominate.

Diagnostic features: Thin, well-made, medium-size triangular forms.

Technique of manufacture: Flaking, good to excellent.

Type of rock: Predominantly white quartz, with a minority of specimens of clear quartz and chert.

Comment: Chert points predominate at the Cornett site. Points from Stony Creek and Graves sites show a trend toward straight bases and the use of quartzite.

TYPE C—TRIANGULAR

(Pl. 25, *a*)

Overall length: Range, 25–40 mm.; majority, 30–35 mm.

Basal width: Range, 20–35 mm.; majority, 25–30 mm.

Blade: Generally isosceles and thin (up to 5 mm.); sides straight and not serrated; angles acute.

Stem: None.

Base: Of the three triangular types, A, B, and C, the basal treatment of this type shows more of an incurvate trend than the other two.

Diagnostic features: Relatively large, thin triangular forms with straight sides and usually incurvate bases.

Technique of manufacture: Well made with good to excellent flaking.

Type of rock: A wider variety of stone than in Types A and B. White quartz predominates, but chert and quartzite are prominent, with an occasional use of rhyolite.

Comment: Specimens from Stony Creek and Graves sites show a trend toward straight bases and the use of quartzite.

TYPE D—CRUDE TRIANGULAR

(Pl. 25, *b*)

Overall length: Range, 25–70 mm.

Basal width: Range, 20–45 mm.

Blade: This is a motley group of artifacts having a general triangular shape. They are consistently thick (up to 15 mm.), and the edges are irregularly flaked. Some are small, corresponding to Type A; others are larger than Type C and always thicker.

Stem: None.

Base: Crudely chipped and may be excurvate, incurvate, or straight.

Diagnostic features: Trianguloid shape, thick, and crudely chipped.

Technique of manufacture: Poor flaking.

Type of rock: Generally white quartz, but quartzite and chert frequent.

Comment: This group of artifacts is thought to be abortive attempts to make triangular projectile points of Types A, B, or C.

TYPE E—PENTAGONAL

(Pl. 26, *a*)

Overall length: Range: 25–40 mm.

Basal width: Range 20–35 mm.

Blade: From the base toward the point, the sides parallel one another one-third to two-thirds the length of the blade; then the sides form obtuse angles and join at the apex. This produces an artifact with two right angles at the base, two obtuse angles at the sides, and an acute angle at the apex. Some blades are thin (less than 5 mm.), but others may be up to 10 mm. thick.

Stem: None.

Base: Shallow, incurvate and straight forms occur.

Diagnostic features: Four sides and a base united by angular or rounded contours in the general form of an irregular pentagon.

Technique of manufacture: An occasional point is exceptionally well made; the flaking of majority is rated good.

Type of rock: White quartz, clear quartz, chert, and quartzite.

Comment: This type is usually thin and small on the Rivanna River sites, but on the Stony Creek sites it is longer and tends toward Type F.

TYPE F—LANCEOLATE

(Pl. 26, *b*)

Overall length: Range, 27–80 mm.; majority, 45 mm.

Basal width: Range, 17–25 mm.; majority, 20 mm.

Blade: Beginning at the base, the two sides parallel one-third to two-thirds the length of the blade and then converge gracefully toward the apex. There is no definite angulation along the blade at the point where the two sides converge. Serration is absent. Usually 5–10 mm. thick.

Stem: None.

Base: Right angles are formed where base and sides meet. These may be rounded and not sharp. The bases are generally straight though some specimens show mild incurvate bases.

Diagnostic features: As described under Blade.

Technique of manufacture: Ordinarily well made. Some specimens do not show a regard for symmetry.

Type of rock: White quartz is the stone of choice, but specimens of chert and quartzite are found.

Comment: Type F from the Gordon site have diverging sides for one-half the length of the blade and then bend gracefully toward the point. These points have incurvate bases and are generally 10 mm. thick.

TYPE G—NOTCHED BASE

(Pl. 27, *a*)

Overall length: Range, 25–40 mm.; majority, 30 mm.

Basal width: Range, 20–25 mm.; majority, 20 mm.

Blade: Usually separated from the base by small lateral projections or shoulders. The blade is trianguloid and frequently serrated. The blade and base may be of equal size but more often the blade is longer and, because of the lateral projections, is wider than the base. Thin blade (less than 5 mm.).

Stem: None. (The modified basal section could be considered a stem, but here is considered the base.)

Base: The central portion is indented by a narrow notch, 2/4-mm. deep. The lateral angles are rounded and *confluent* with the curve of the central notch. The edges of the base may parallel one another for 4 to 7 mm. below the lateral projections or shoulders of the blade.

Diagnostic features: Short trianguloid blade, often serrated, a well-demarked base with a central notch, the blade and base separated by short lateral projections or shoulders.

Technique of manufacture: Flaking on the blade often irregular; the basal portion more carefully chipped.

Type of rock: Predominantly white quartz.

Comment: This type of point is also called "bifurcated base" point. The larger forms of this type were found at the Yowell and Stony Creek No. 2 sites.

TYPE H—STUBBY BARBED

(Pl. 27, *b*)

Overall length: Range, 20–40 mm.; majority, 35 mm.

Shoulder width: Range, 15–30 mm.; majority, 25 mm.

Blade: Trianguloid. It has distinctly pointed shoulders which give the specimens a "barbed" effect. The blade is approximately as wide as it is long. Since these measurements are relatively small the point has a "stubby" appearance. No serration. Blades of medium thickness (4–7 mm.).

Stem: Centered on the blade and expands into rounded or pointed tangs. Short (average 10 mm.).

Base: Between the tangs the base is generally straight. Some specimens excurvate.

Diagnostic features: Blade of small size, almost as wide as it is long; pointed shoulders; a short stem which ends in rounded or pointed tangs.

Technique of manufacture: Flaking, generally excellent. Some specimens are asymmetrical at the shoulders and tangs with one side "barbed," the other rounded.

Type of rock: White quartz most commonly, but chert and quartzite represented.

Comment: This type was held as a "tight" type with very little variation allowed.

TYPE I—NOTCHED STEMMED

(Pl. 28, *a*)

Overall length: Range, 20–60 mm.; majority, 40–50 mm.

Shoulder width: Range, 20–30 mm.; majority, 20–25 mm.

Blade: Long and relatively narrow, with a diamond or oval cross section, and medium thick (4–7 mm.). Shoulders generally rounded although some specimens angular, always wider than the base. Sides generally straight, but may be gracefully ovate.

Stem: Produced by narrowing the blade on either side with shallow elongated notches. Stem and blade are not sharply demarcated at the shoulders. This area, and the base, are frequently "smoothed."

Base: Narrower than the shoulders, tangs rounded, basal edge straight. Basal edge on some specimens mildly incurvate. "Smoothing" frequent.

Diagnostic features: Long isosceles blade, rounded shoulders, shallow elongated notches, and a base narrower than the shoulders.

Technique of manufacture: Specimens generally well made and symmetrical.

Type of rock: Majority white quartz; quartzite frequently; a few of chert.

Comment: In the smaller specimens the differentiation between Types H and I becomes difficult because of the shortening of the elongated notch and increased angulation of the shoulders.

TYPE J—OVOID BASE

(Pl. 28, *b*)

Overall length: Range, 30–55 mm.; majority, 45 mm.

Maximum width: Range, 13–30 mm.; majority, 20 mm.

Blade: Long isosceles form; cross section of the blade is diamond or a long oval and may be 10 mm. thick, usually of medium thickness (5–7 mm.). No shoulders present.

Stem: None.

Base: Oval or elliptical. There is no distinct separation between blade and base. Typically the base is one-fourth to one-half the overall length of the specimens. "Smoothing" not present.

Diagnostic features: Long, isosceles triangular blade, no shoulders, and an ovoid or elliptical base.

Technique of manufacture: Well made and rarely asymmetrical. Flaking good to excellent.

Type of rock: Almost entirely of white quartz.

Comment: The specimens studied from the James River sites were thinner, narrower, and shorter than those from other sites.

TYPE K—CONTRACTING STEM

(Pl. 29, *a*)

Overall length: Range, 30–60 mm.; majority, 40–45 mm.

Maximum width: Range, 14–30 mm.; majority, 25 mm.

Blade: Long isosceles triangle. Cross section, diamond or long oval. Sides straight with no serration. Shoulders rudimentary or definite. If definite, generally small.

Stem: Triangular in shape, with the base of the triangle at the base of the blade. The apex of the stem may be rounder. No "smoothing." The stem is one-fourth to one-half the entire length of the artifact.

Base: See stem.

Diagnostic features: Long trianguloid blade, rudimentary or small shoulders, a base or stem which is wide below the shoulders but contracts to a rounded or pointed angle.

Technique of manufacture: Flaking, fair to excellent. Asymmetry of shoulders frequent.

Type of rock: Generally white quartz; a large number of quartzite and chert; few of greenstone.

Comments: No peculiar features.

TYPE L—PARALLEL-SIDED STEMMED

(Pl. 29, *b*)

Overall length: Range, 35–65 mm.; majority, 40–50 mm.

Shoulder width: Range, 15–35 mm.; majority, 20–25 mm.

Blade: Trianguloid and longer than the width at the shoulders. Edges of some specimens excurvate. Shoulders generally angular but may be rounded, rarely forming a barb. The blade may be 10 mm. thick between the shoulders.

Stem: Characteristically 10–15 mm. long and symmetrically placed between the shoulders. Angle between stem and blade usually right angular, but may be considerably rounded. Sides of the stem parallel one another and end at the base without the formation of tangs. Width of the stem may be slightly less than the shoulders or may be only one-half the width of the base of the blade. Edges of stem and base sometimes "smoothed."

Base: Lateral edges do not show tangs, generally rounded. Base generally straight, but may be incurvate or oblique.

Diagnostic features: Long, trianguloid blade, definite shoulders, parallel-sided stem.

Technique of manufacture: Flaking fair to good. Asymmetrical forms appear.

Type of rock: White quartz, quartzite and flint, the stones of choice listed in their order of frequency.

Comment: No peculiar features.

TYPE M—SIDE-NOTCHED

(Pl. 30, *a*)

Overall length: Range, 32–50 mm.
Shoulder width: Range, 16–33 mm.
Blade: Trianguloid with either straight or excurvate sides. The shoulders are formed by two notches which interrupt the extension of the sides of the blade to the base. The shoulders are not barbed and the blade edges are not serrated. The blade is 6–8 mm. thick.
Stem: Formed by two notches on either edge of the blade; these are usually shallow in depth and width (5 mm.), and have rounded contours. The stem between these notches is an unmodified section of the blade.
Base: As wide if not wider than the shoulders. Below the notches the base may be 5 mm. wide. Between the lateral edges the base is usually straight but may be excurvate or incurvate to a mild degree. A noticeable treatment of the base and notches is "smoothing." This feature occurs frequently.
Diagnostic features: Trianguloid blade, shallow notches which leave the base as wide and usually wider than the shoulders.
Technique of manufacture: Flaking is generally good. The formation of the notches is frequently asymmetrical in size and contour.
Comment: No peculiar features.

TYPE N—UNCLASSIFIED

This type represents fragments whose original shape could not be reconstructed. Among the specimens are point and center sections of blades and obliquely fractured stems and bases. Relatively few forms were found on the various sites which could not be classified according to the types set forth. These were relegated to this group.

TYPE O—EARED OR CORNER NOTCHED

(Pl. 30, *b*)

Overall length: Range, 30–40 mm.
Shoulder width: Range, 20–30 mm.
Blade: Isosceles triangular with angular shoulder of 2 to 3 mm. in width.
Stem: Lacks 4 to 6 mm. of being as wide as the blade at the shoulders; 3 to 5 mm. long. Parallel sided or with small tangs.
Base: Straight or slightly incurvate.
Diagnostic features: Isosceles blade, short shoulders and stem, and an incurvate or straight base.
Type of rock: Generally chert.
Comment: The sample of this type is so small no average size can be shown. The range in form is probably greater than indicated.

TYPE P—LARGE CONTRACTING STEM

(Fig. 23)

Overall length: Range, 60–80 mm.; majority, 70–75 mm.
Shoulder width: Range, 35–50 mm.; majority, 40 mm.
Blade: General excurvate, not serrated, 7–10 mm. thick. One shoulder is usually angular, the other rounded. These shoulders are usually 10 mm. wide, regardless of shape.

Stem: Centrally placed at the base of the blade, contracting to a rounded angle. Occasionally this rounded angle is replaced by a short straight or oblique section. The stem is 5 to 15 mm. long.

Base: See Stem.

Diagnostic features: Ovate, relatively thick blade, wide asymmetrical shoulders, and a stem which contracts to a rounded angle.

Technique of manufacture: Good flaking.

Type of rock: All specimens of quartzite, except one of chert.

Comment: Larger size mainly distinguishes this group from Type K.

TYPE Q—LARGE PARALLEL-SIDED STEMMED

(Fig. 23)

Overall length: Range, 60–140 mm.; majority, 70–80 mm.

Shoulder width: Range, 28–45 mm.; majority, 35–40 mm.

Blade: Trianguloid, with nonserrated, straight sides. Shoulders, 4–15 mm. wide, generally asymmetrical, joining the stem with rounded contours. Usually 12–14 mm. thick.

Stem: Sides are parallel ranging from 7–20 mm. in length and from 18–25 mm. in width.

Base: This area is irregular, either straight, oblique, or incurvate.

Diagnostic features: Large trianguloid blade, asymmetrical shoulders and parallel-sided stem.

Technique of manufacture Flaking, fair to good. There are many asymmetrical features of the blade, shoulders, and base.

Type of rock: Predominantly quartzite, followed in frequency by greenstone, then chert. No white quartz.

Comment: Except larger proportions, similar to Type L.

TYPE R—LARGE SIDE-NOTCHED

(Fig. 23)

Overall length: Range, 60–70 mm.

Shoulder width: Range, 25–40 mm.

Blade: Straight or gracefully excurvate sides which may be serrated. The shoulders are symmetrical, being rounded and angular on the same specimen.

Stem: Produced by either shallow, elongated notches or angular, oblique notches. When the notches are angular and oblique they produce an expanding stem.

Base: The tangs are rounded and between them the base is mildly incurvate.

Diagnostic features: Long isosceles trianguloid blade with irregularly shaped notches producing asymmetrical shoulders, rounded tangs, and a mildly incurvate base.

Technique of manufacture: Flaking is poor to fair.

Type of rock: Quartzite, chert, white quartz, listed in order of preference.

Comment: Except larger proportions, similar to Type M.

TYPE S—LARGE POINTED BASE

(Fig. 23)

Overall length: Range, 70–100 mm.; majority, 90 mm.

Maximum width: Range, 35–42 mm.; majority, 40 mm.

Blade: Excurvate with the maximum width near the center of the blade. Sides are irregularly flaked.

Stem: Tapers to the base forming rudimentary shoulders. This is an irregular feature. It may be found on one side and not on the other. One specimen had rudimentary shoulders on both sides. The stem is usually 20–35 mm. long.

Base: Straight, mildly incurvate or excurvate; 12–16 mm. wide.

Diagnostic features: Ovate blade, contracting stem to a definite base. Rudimentary shoulders are usually present on one side only.

Technique of manufacture: Flaking poor to fair.

Type of rock: Usually quartzite, sometimes greenstone.

Comment: None.

TYPE T—LARGE TRIANGULAR

(Fig. 23)

Overall length: Range, 60–85 mm.

Basal width: Range, 20–45 mm.

Blade: Always long isosceles trianguloid. An occasional excurvate form is found. The sides are frequently irregular because of uneven chipping.

Stem: None.

Base: Straight; rounded basal angles.

Diagnostic features: Long isosceles triangular form with straight base and rounded basal angles.

Technique of manufacture: Flaking fair to good.

Type of rock: Quartzite predominates.

Comment: Larger size distinguishes the group from Type C.

TYPE U—LARGE ROUNDED BASE

(Fig. 23)

Overall length: Range, 63–110 mm.

Maximum width: Range, 26–55 mm.

Blade: Excurvate sides. Edges are irregular due to careless flaking. No shoulders. Often up to 16 mm. thick.

Stem: None.

Base: Rounded or oval.

Diagnostic features: Ovate blade, no shoulders, oval base.

Type of rock: Quartzite and greenstone.

Comment: Similar to Type J except for larger proportions.

TYPE V—UNCLASSIFIED LARGE BLADES

This group constitutes fragments of large blades whose original form could not be reconstructed.

ANALYSIS AND INTERPRETATION

All the basic classifications by site, type, and rock material are shown in table 9 (pp. 182–191). This table shows the various types vertically, and the sites horizontally and alphabetically. The rock material is listed under each site and the totals and percentages are given at the bottom of the table. The type totals and percentages are given in each site column. In instances where the samples are small, the percentages are not calculated and are not used in the seriation.

The percentage occurrence of each type was plotted horizontally on strips of millimeter graph paper for each site with an adequate sample of chipped artifacts. These were then seriated without any knowledge of Dr. Evans' ceramic seriation. Later the results of the two seriations were compared and their significance is discussed in detail in Dr. Evans' report (pp. 140–141).

The only basis on which to begin the seriation was the selection of the graph strips of six sites without pottery samples. It was felt these sites might represent a nonceramic group or groups, an assumption which would prove significant or valueless during the seriation. Immediately it was noticed these sites had large percentages of parallel-stemmed types, few triangular varieties, and no small triangular points. Therefore, taking Parallel-sided Stemmed Type L and Notched-Stemmed Type I, the two types with the largest percentages, the bar graphs were arbitrarily arranged into a sequence for the six sites. The rest of the sites were then seriated according to the trends established by these types. Type L gradually increased in popularity while Notch-Stemmed Type I was the most popular. As the seriation continued, Type I began to diminish in popularity as Type L increased and blossomed out momentarily. It was noted at this point that there was a need for the representation of a greater number of sites to smooth out the abrupt changes in the bar graphs. However, in spite of this deficiency, a significant change was noted midway in the sequence. As Types L and I diminished, certain of the triangular forms began to appear in steadily increasing percentages. The seriation was continued on Types L and I, for, if the other types were to show any trend, they should fall into line as Types L and I held their trend. As Type L diminished into percentages of 1 to 5 percent, Triangular Type C reached a peak of 30 to 56 percent.

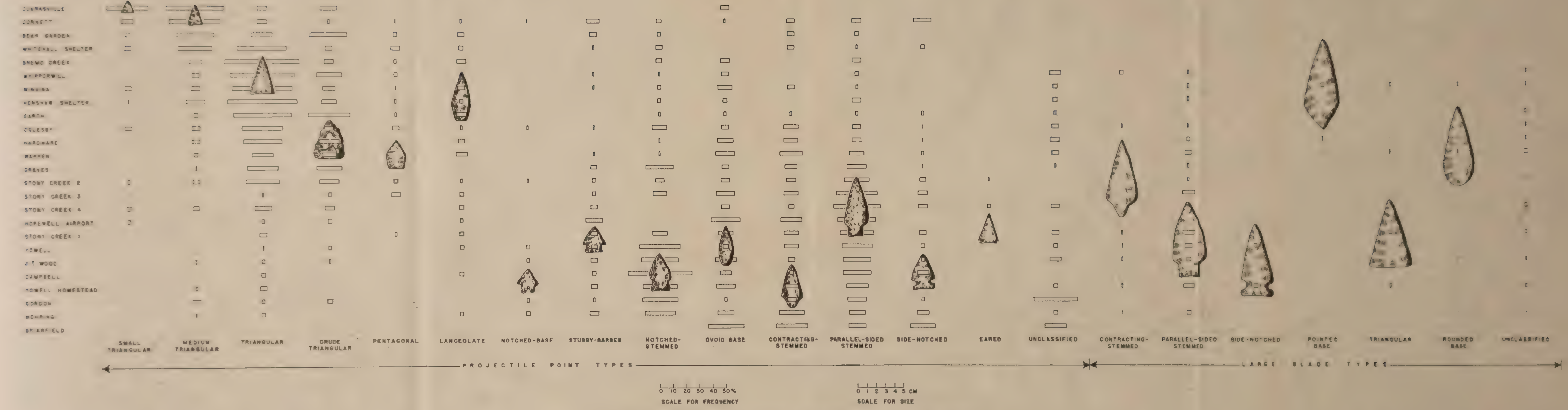

Figure 23.—Projectile point and large blade seriated sequence. The typical form of each type is drawn to scale at the point of highest frequency.

Another trend in the triangular forms began to appear with the increase in percentage of Triangular Type C. Small Triangular Type A and Medium Triangular Type B began to increase in popularity. This proved to be an interesting phase of the typological study, for at one point these two types were lumped together. Their trend as two types shows the advantage of their separation, for at the top of the seriation chart they are the most popular projectile-point types. Crude Triangular Type D can be practically ignored, for the mere nature of the type would make a trend in it improbable.

After the first seriation on Types L and I, refinement of the curves was made by careful study of the internal changes within each type. The final projectile-point and large-blade seriation is presented in figure 23. Certain significant changes will be observed as plotted in this chart. Large Parallel-sided Stemmed Type Q is the only large blade type to show any trend. This type shows a maximum occurrence of 10 percent at the Stony Creek sites, which suggests a regional specialization. It is interesting to note that large blade Type Q and projectile point Type L, both Parallel-sided Stemmed varieties, differing mainly in size, are the most popular types at the same sites.

The irregular trends and sporadic occurrences of Pentagonal Type E, Lanceolate Type F, Notched Base Type G, Stubby Barbed Type H, and Eared Type O may not be due to their mistyping but rather suggest that for the area studied these forms are not important enough to show cultural changes. When more sites are studied and adjoining areas undergo similar surveys, these forms may assume meaning.

The present study was carried further by considering the percentages of each type of rock out of which the artifacts were made. These were graphed and compared. Chert, which will also include an occasional variety of chalcedony in this study, quartzite, clear quartz, and white quartz are the categories used. Greenstone, rhyolite, and felsite were too infrequent to warrant separate classification and hence appear under the heading Miscellaneous.

The result of this study is that the real meaning of the rock preference is primarily a regional attribute and secondarily a cultural trait. To illustrate, white quartz is bountiful in the area of the nonceramic sites and the largest percentage of the artifacts are made of this material on these sites. However, quartzite is native to the same area. The selection of white quartz can be interpreted as a cultural preference. On the other hand, the area represented by Stony Creek sites 1, 2, 3, and 4, Old Indian Road, Haley's Bridge, and Capron has a highly limited amount of float quartz. Most of the natural boulders and pebbles are tan to gray, fine-grained quartzite. The artifacts from these sites are overwhelmingly made of quartzite. This selection leads to an interpretation of a regional preference due to limited local natural resources. Cultural factors may not be neglected even here, for other evidence tends to demonstrate the Stony Creek area as a distinct cultural group from those people occupying central Virginia, where the preference for white and clear quartz occurs.

At the Cornett site 85 percent of the artifacts are made of chert, with only a trace of white quartz. The availability of chert in this mountainous region is suggested as the reason for this rock preference. Even here the cultural factor cannot be completely disregarded, for Dr. Evans says his ceramic material argues for a distinct cultural group or groups, different from other parts of the State.

The problem may be argued in another fashion. Select Triangular Types A and B from the top of the seriation chart, presumedly the latest style of projectile-point types in Virginia, and compare these with the type of rock of which they are made. At the Cornett site 85.4 percent of the points are chert and 42 percent of the artifacts chipped of this chert are types A and B. Clarksville has an 87.5 percent preference for white quartz with 75 percent of these quartz artifacts Types A and B.[17] Whitehall Shelter shows the following preferences of rock in Types A and B: 15.4 percent chert, 26.9 percent white quartz, and 46.2 percent clear quartz. For the whole site the distribution is 25.6 percent chert, 40.7 percent white quartz, and 19.8 percent clear quartz. At Bear Garden site all types A and B points are white quartz except two. In the total material range 89 percent is white quartz, 5.5 percent clear quartz, and there is no chert. These data would tend to signify that the introduction of small and medium triangular points into three widely separated areas in Virginia did not carry with it the introduction of the use of the same rock material in the manufacture of these artifacts. The probabilities are that local rock resources continued to be utilized. This preference was most likely due to availability, and less likely has a cultural basis.

The archeological literature of Virginia relating to projectile points and blades is not extensive. The earliest postulated projectile point forms, the eastern variant of the Folsom (McCary, 1949; 1951 a, p. 9), were not encountered in this survey. The fluted pentagonal forms which have been hypothecated as associated with the eastern variant of the Folsom point (Bushnell, 1935, p. 35) were also not encountered. Pentagonal Type E points were not fluted, were usually asymmetrical, and were made of rock other than chert, the material from which these other points were most frequently made.

A ceramic and a nonceramic horizon have been indicated for central Virginia in two previous articles (Holland, 1949, p. 10; 1950, p. 12).

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[17] Larger collections of points from this site, not available for this study, were seen at Clarksville. They fell mainly into Triangular Types A and B with most of them made of white and clear quartz.

All the sites mentioned in these articles were restudied with the exception of the Meadow Creek site. There is an association of atlatl weights with the nonceramic sites and a lack of such association with the ceramic-bearing sites. This may be of importance in view of the fact that nonceramic sites may date before the introduction of bows and arrows and existed when the standard propellant was the throwing stick (atlatl) and atlatl weights were used for counterbalances. More extensive work on the nonceramic sites in Virginia and the Eastern United States should ultimately throw more light on this subject.

The lanceolate forms of the Gordon site are different from Lanceolate Type F found on all the other sites in this survey. They are typical of early ceramic and nonceramic sites reported from southern Virginia and northern North Carolina in the vicinity of Danville, Va. (Holland, 1948, pl. 1, Nos. 1–6, 13–18). The points represent a special type, for they are thicker, longer, and made of silicified schist. Due to this observation the lanceolate forms from the Gordon site were placed in the Unclassified Type N group.

At Marcey Creek on the northern boundary of Virginia, 40 percent of the chipped stone artifacts were "stemmed projectile points" (Manson, 1948, p. 225). Manson lists the site as an "early manifestation" in the Potomac Valley, and the projectile points are said to be "similar to those found at Pope's Creek shell heap, the prehistoric Piney Branch quarries in Rock Creek Park, Washington, D. C., and at numerous nonpottery campsites in the lower Potomac Valley. They are also comparable to those found on the Selden Island site." A review of Manson's illustrations (pl. 23, p. 227) indicates that our Parallel-sided Stemmed Type L, Large Parallel-sided Stemmed Type Q, Lanceolate Type F, Contracting Stem Type K, and Stemmed Notched Type I points are present in both upper and lower levels of his excavation. It will be noted that these types are the forms with the highest percentage occurrences in the lower part of the sequence chart (fig. 23).

The Keyser Farm site (Manson, MacCord, and Griffin, 1944, p. 413) has been assigned a date of occupancy between A. D. 1550 and 1650. Of 110 projectile points, 104 are triangular and only 6 are stemmed. Reviewing their illustrations (pl. 7), it was found that the triangular points belong to Small Triangular Type A, Medium Triangular Type B, and Triangular Type C. This distribution of triangular forms and the low percentage (5.4 percent) of the stemmed forms places the Keyser Farm site in the upper section of the seriation sequence, a point of conformity well borne out by the late dates of occupation assigned to the site.

Bullen (1950, p. 3) has discussed the aboriginal chronology of Virginia from the archeological literature of the State and from analogies with sites outside the State. He points out that the various mounds excavated by Fowke in 1894 were not all of the same time period. He assigns the Brumback Mound to a late period because of the association of buffalo bones, clay pipes, and triangular projectile points. He states, "That their [triangular projectile points] use continued into historic times is indicated by their presence as the major projectile-point type at the Indian towns of Occaneechi and Keyanne in the Roanoke Valley and Potawomeke on the Potomac where they were associated with items of Colonial trade" (ibid.). In a later article Bullen reviews many Eastern United States sites with reference to what he defines as a small triangular arrowpoint, which is "3 cm. or less in length. Predominately, they have excurvate sides, concave bases, and, usually, rounded or incurving basal corners. In general, they are equilateral in overall shape, and, where quartz is readily available, frequently made of this material" (Bullen, 1951, p. 64). He is of the opinion that these triangular points may have had their origin with the Dorset Eskimo and that they diffused from north to south in the Eastern United States, a point neither particularly substantiated nor disproved by the limited scope of this study.

Ralph Solecki, in reporting his material from the Bluestone Reservation of West Virginia, did not classify his points into types with numerical counts and percentages, because he found only 82 chipped specimens for all his sites. The data for his entire complex of sites can be compared with the Cornett site. Regarding the rock material, Solecki comments, "The stone material, as learned from the flakes and chips used, appears to consist in the main of flint or chert, with only about 12 percent white quartz represented" (Solecki, 1949, p. 391). His illustrated types of artifacts fall easily into the types used in this study. He makes a significant point, "triangular points furnish close to 49 percent of the projectile point types. The majority of these were found on Site 46 Su 20, which bears a significant number of Fort Ancient Aspect traits. Site 46 Su 3, represented in local collections, shows a percentage of about 38 percent in triangular points" (ibid., p. 392). Two important conclusions may be drawn from this brief account. First, there is a regional preference for chert in the New River area of West Virginia, as well as in the western tip of Virginia. Second, the high percentage of triangular points, especially on Sites 46 Su 20 and 46 Su 3, fit into the upper third, but not at the top, of the point seriation of the present study. Solecki indicates a similar conclusion in his summary, "Both the West Fork Reservation and the Bluestone Reservation area were devoid of actual Indian villages at the time of the first settlement by the whites" (ibid., pp. 421–422).

The Peachtree Mound and Village Site in Cherokee County, N. C., are of comparative interest. This site had European contact materials and an abundance of gunflints scattered throughout the various levels.

"The triangular, concave base projectile point is the predominate type. . . . the minority of the points are of the stemmed type. . . . The two types, stemmed and triangular, occur throughout the site from surface to basic clay . . . it is felt that both styles are typical of the Peachtree component" (Setzler and Jennings, 1941, p. 35). It is unfortunate the "100's of projectile points" (ibid., p. 68) were not broken down into a more careful tabulation of types and materials to see if there were any actual percentage changes throughout the time represented from the lowest to the uppermost levels.

Setzler indicates that the point types illustrated in plate 22 of the Peachtree report not only show the range of shapes but in part were selected to represent quantitative occurrence.[18] This means that the top and middle rows, with the exception of three points, are triangular, and the bottom row is stemmed. The greater popularity of the triangular types (roughly 60 percent) and the less frequent occurrence (roughly 30 percent) of stemmed points suggest that the point types fit into the upper third of the seriation chart in this study. "The Peachtree site is a component in which both Woodland and Mississippi traits occur simultaneously, blended or fused to make a culturally homogeneous site. It has a temporal range from 1830, or thereabouts, back to pre-white contact, and probably was occupied by the Cherokee during this entire period" (Setzler and Jennings, 1941, p. 57). These data would tend to corroborate the trend from stemmed to triangular points in the Eastern United States.

The two Broomall Shelters in Pennsylvania (Butler, 1947, p. 252) are considered protohistoric (site D 1) and early contact (site D 2).[19] The percentage of triangular points rises from 7 percent in D 1, to 40 percent in D 2. The "square tanged" which would be comparable to Parallel-sided Stemmed Type L decreases from 31 percent in D 1 to 3 percent in D 2 (pl. 16, points "q" and "r"; table 3, p. 249). This same trend of an increase in triangular points and decrease in stemmed varieties is shown in the Virginia seriation; although there is a slight question as to whether the Broomall Shelters would be in the protohistoric and contact period if seriated into the sites of the Virginia sequence.

In a general summary of Pennsylvania archeology, Witthoft's statements without any doubt would tend to corroborate the seriated sequence of Virginia. He says—

> Everywhere in the United States east of the Rockies, with the possible exception of the Rhode Island area and probably of the Florida peninsula, almost every historic culture is characterized by small triangular arrowpoints and an absence

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[18] Personal communication with Dr. Evans, August 27, 1951.

[19] At present, most Eastern archeologists do not agree with Butler's interpretation of a single occupation, but see the site as being occupied briefly by two separate groups widely separated in time. If this is the case it would naturally cause a reevaluation of the projectile-point trend. The comments here are based on Butler's published data.

> of other types. . . . The significance of triangular arrowpoints in the late period is not known, but it is quite certain that no other type was made in most areas within a late period of several centuries. It is also quite probable that the bow was the only hunting tool of this period, and the spear and spear-thrower were no longer in use. [Witthoft, 1949, pp. 7–8.]

In the Archaic Horizon in western Tennessee the "straight stemmed" type of points is the most abundant of the varieties listed (Lewis and Kneberg, 1947, p. 18). This type is described as "small to large in size" and appears to be similar to Parallel-sided Stemmed Type L and Large Parallel-sided Stemmed Type Q in this study. The infrequent triangular varieties of the Archaic Horizon in the Tennessee region are not similar to any of the types reported here; they are longer in relation to width and generally excurvate.

The Hamilton Incurvate Triangular projectile point and the Dallas Excurvate Triangular projectile point as reported in Hiwassee Island (Lewis and Kneberg, 1946, pp. 110, 113) do not fit the type descriptions of the triangular types in this study, except the short varieties of Hamilton Incurvate Triangular (ibid., pl. 65, A and B). The stemmed varieties of the Hamilton and Dallas components were not broken down into subgroups and, as a result, cannot be compared with the types in this study. Therefore, even though the general trend from stemmed to triangular varieties repeats itself, the gross differences in the projectile point complex would suggest the absence of direct cultural contact between the groups of Hiwassee Island and Virginia.

In New Jersey there appears to be a definite concentration of the small triangular "arrow points" in the zones of excavations near the surface. They also appear in association with stemmed varieties at all depths of the excavations (Cross, 1941, p. 189). This same general trend is reflected in the horizontal seriation reported here.

In Ritchie's study entitled "The Pre-Iroquoian Occupations of New York State" (Ritchie, 1944), the seriation charts and temporal distribution of type percentages (pl. 165, A) is particularly applicable to this horizontal seriation study. His chipped stone artifacts described as stemmed- and side-notched with various adjectival labels, such as "narrow," "broad," appear in highest concentrations in the Archaic Horizon. They also appear in much smaller percentages throughout the other two time periods, the Intermediate and the Prehistoric. The triangular varieties are also met in all three horizons, but they appear as a trace in the Lamoka and Frontenac Foci of the Archaic[20] and become the predominant type in the Prehistoric Period. It is of interest to note that his category of "stemmed bifurcated" points, similar to

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[20] The unusually high percentage of triangular points in the Brewerton Focus of the Laurentian Aspects of the Archaic is explainable as an intrusive culture from the north into the local situation.

Notched-Base Type G, are associated with the Archaic Horizon and have a similar distribution, both as to small percentage occurrence and to time, in the Virginia study.

In the excavations at the Potter Pond site in Rhode Island (Fowler and Luther, 1950, p. 95) the trend, as diagrammed, shows that Side-Notched Type M, Parallel-sided Stemmed Type L, and Lanceolate Type F points are confined to the lowest of three zones in the excavation. Notched Stemmed Type I is present in the lowest zone but blossoms out in the middle zone and is only slightly represented in the uppermost zone. Small triangular points have their greatest development in the middle zone but appear in all three. Large triangular points appear only in the middle and uppermost zones of the excavations. For northeastern Massachusetts the same general trend as reported for the Potter Pond site holds true, as reported by Bullen at 11 sites (Bullen, 1949, pp. 76–77). Their "small triangular" would appear to be represented by Small Triangular Type A and Medium Triangular Type B; the "large triangular," by Triangular Type C points. This general trend in the types of triangular points is reversed in the horizontal seriation in Virginia. It would be speculative to try to account for this reversal of trends between New England and Virginia without more data.

This brief summary of the comparative literature tends to corroborate in general the seriation sequence established in this study. There are, as may be expected, certain discrepancies, such as the reversal of the position in time of the large and small triangular varieties in New England when compared with similar projectile point groups in Virginia. It is particularly pertinent to discover that the general literature of the Eastern United States establishes the bottom of the seriation chart (fig. 23) as the earliest in time, and the general literature of the immediate area surrounding Virginia establishes the top of the seriation chart as the most recent in time. It may well be, if the dates given to the Keyser Farm site are correct that the two sites at the top of the seriation chart, Clarksville and Cornett, may likewise be given a similar dating, although the assignment of absolute dates to sites in the sequence is by no means within the scope of the present available data on Virginia archeology.

TABLE 9.—*Projectile point and large blade analysis for Virginia sites*

Points	Occurrence of points of indicated type and material at—																											
	Bear Garden							Bremo Creek							Briarfield							Buffalo Gap						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A			1			1	2.8																					
Type B			8	1	1	10	27.8			4			4	9.3														
Type C			6			6	16.7	1	1	22			24	56.1														
Type D			9		1	10	27.8			3			3	6.9														
Type E				1		1	2.8			1			1	2.3														
Type F			2			2	5.6			3			3	6.9														
Type G																												
Type H			2			2	5.5																					
Type I			1			1	2.7			2			2	4.7														
Type J										3			3	6.9		9	1			10	27.2							
Type K			2			2	5.5									8	1			9	24.1							
Type L			1			1	2.8			3			3	6.9		5				5	13.5			1			1	
Type M																5	2			7	18.9							
Type N																4	2			6	16.3							
Type O																												
Type P																												
Type Q																												
Type R																												
Type S																												
Type T																												
Type U																												
Type V																												
Total			32	2	2	36	100	1	1	41			43	100		31	6			37	100			1			1	
Percentage of rock material			89.0	5.5	5.5			2.3	2.3	95.4						84.0	16.0											

Points	Occurrence of points of indicated type and material at—																											
	Campbell							Capron							Carr's Brook							Clarksville Surface						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A																								5			5	31.2
Type B																	2			2	10.0			7			7	43.7
Type C		1				1	3.0		4				4				1			1	5.0	1					1	6.3
Type D									1	1			2		2		8			10	50.0			2			2	12.5
Type E																												
Type F			1			1	3.0										2			2	10.0							
Type G																												
Type H	1					1	3.0																					
Type I			16			16	48.6								1					1	5.0							
Type J			3			3	9.1								1					1	5.0	1					1	6.3
Type K	1					1	3.0																					
Type L		2	4		1	7	21.2										1			1	5.0							
Type M		1			2	3	9.1																					
Type N																												
Type O																			1	1	5.0							
Type P																												
Type Q																												
Type R																												
Type S																												
Type T																												
Type U																												
Type V																	1			1	5.0							
Total	2	4	24		3	33	100		5	1			6		4		15		1	20	100	2		14			16	100
Percentage of rock material	6.0	12.2	72.7		9.1										20.0		75.0		5.0			12.5		87.5				

TABLE 9.—*Projectile point and large blade analysis for Virginia sites*—Continued

Points	Occurrence of points of indicated type and material at —																																			
	Clarksville Cut 2							Cornett							Elm Hill							Fields Island							Garth							
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A	----	----	1	----	----	1	----	13	----	1	----	1	15	8.7	----	----	----	----	----	----	----	----	----	1	----	----	1	----	----	----	2	----	----	2	3.6
Type B	1	----	1	----	----	2	----	61	----	4	----	----	65	38.0	----	----	3	----	----	3	----	----	----	----	----	----	----	----	1	----	11	9	3	24	43.8
Type C	----	----	----	----	----	----	----	10	----	1	----	1	12	7.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	4	7	4	2	17	31.0
Type D	----	----	1	----	----	1	----	3	----	----	----	----	3	1.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	1	1.8
Type E	----	----	----	----	----	----	----	1	----	----	----	----	1	.6	----	----	1	----	----	1	----	----	----	----	----	----	----	----	----	----	3	1	----	4	7.2
Type F	----	----	----	----	----	----	----	2	----	----	----	----	2	1.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type G	----	----	----	----	----	----	----	1	----	----	----	----	1	.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type H	----	----	----	----	----	----	----	14	----	2	----	1	17	9.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	1	1.8
Type I	----	----	----	----	----	----	----	6	----	1	----	----	7	4.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	1	1.8
Type J	----	----	----	----	----	----	----	1	----	1	----	----	2	1.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	1	1.8
Type K	----	----	----	----	----	----	----	7	----	3	----	----	10	5.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	1	1.8
Type L	----	----	----	----	----	----	----	9	----	2	----	1	12	7.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	1	1.8
Type M	----	----	----	----	----	----	----	18	----	5	----	----	23	13.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	1	1.8
Type N	----	----	----	----	----	----	----	----	----	1	----	----	1	.6	1	----	1	----	----	2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type O	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type P	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type Q	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type R	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type U	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	1	1.8
Type V	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Total	1	----	3	----	----	4	----	146	----	21	----	4	171	100	1	----	5	----	----	6	----	----	----	1	----	----	1	----	1	6	28	15	5	55	100
Percentage of rock material	----	----	----	----	----	----	----	85.4	----	12.4	----	2.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1.8	10.9	51.0	27.2	9.1	----	----

Points	Occurrence of points of indicated type and material at—																											
	Gordon							Graves							Haley's Bridge							Hardware						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A																												
Type B	2		1			3	6.2	1					1	.9										10			10	5.9
Type C			1			1	2.0	3	18	3			24	23.1								1	2	46		1	50	29.8
Type D	2					2	4.1	2	16		2		20	19.2										25			25	14.9
Type E																												
Type F																								7			7	4.2
Type G	1					1	2.0																					
Type H	1					1	2.0	3		2			5	4.8														
Type I	4		9			13	26.6	1	2	19			22	21.2										2			2	1.2
Type J			1			1	2.0		1	4			5	4.8		1	2			3				20			20	12.0
Type K	1		2			3	6.1		1	8			9	8.8								1		14		4	19	11.3
Type L			4		3	7	14.3	3	8	3		1	15	14.5		2				2		1	2	7		2	12	7.2
Type M			1			1	2.0		1				1	.9									1				1	.5
Type N	11		5			16	32.7		1				1	.9									2	10			12	7.2
Type O																												
Type P																												
Type Q									1				1	.9									4				4	2.4
Type R																												
Type S																							2				2	1.2
Type T																								1			1	.5
Type U																								1			1	.5
Type V																								2			2	1.2
Total	22	24		3		49	100	13	49	39	2	1	104	100		3	2			5		3	13	145		7	168	100
Percentage of rock material	44.8	49.0		6.2				12.5	47.1	37.5	2	.9										1.8	7.7	86.3		4.2		

TABLE 9.—*Projectile point and large blade analysis for Virginia sites*—Continued

Points	Occurrence of points of indicated type and material at—																																		
	Henshaw Shelter							Hoffmeyer							J. T. Wood							Leatherwood							Lipscomb						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert.	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A	---	---	---	1	---	1	0.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	1	---
Type B	4	2	13	---	4	23	14.0	---	---	1	---	---	1	---	---	---	1	---	---	1	1.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type C	15	19	34	6	12	86	52.5	---	---	1	---	---	1	---	1	---	---	1	---	2	2.1	---	---	2	---	---	2	---	3	---	---	---	---	3	---
Type D	2	8	4	---	4	18	11.0	---	---	1	---	---	1	---	---	---	1	---	---	1	1.1	1	---	---	---	---	1	---	---	---	---	---	---	---	---
Type E	1	---	---	---	2	3	1.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type F	---	---	2	1	1	4	2.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type G	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2	---	---	2	2.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type H	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	2	2	---	---	5	5.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type I	---	---	4	---	---	4	2.4	---	1	---	---	---	1	---	1	---	6	19	---	26	28.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type J	---	---	6	---	---	6	3.7	---	---	---	---	---	---	---	---	1	14	---	---	15	16.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type K	---	---	---	---	---	---	---	---	---	1	---	---	1	---	---	2	3	---	---	5	5.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type L	---	2	5	---	4	11	6.7	---	---	---	---	---	---	---	---	4	13	---	3	20	21.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	2	---	---	3	3.2	---	---	1	---	---	1	---	---	---	---	---	---	---	---
Type N	4	---	2	---	---	6	3.7	---	---	---	---	---	---	---	1	2	4	---	1	8	8.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type O	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3	---	---	3	---	---	---	---	---	---	---	---
Type P	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	1	1.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type Q	---	2	---	---	---	2	1.2	---	---	---	---	---	---	---	---	2	---	---	1	3	3.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type R	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type S	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type T	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type U	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	1	1.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Type V	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	26	33	70	8	27	164	100	---	1	4	---	---	5	---	4	16	48	20	5	93	100	1	---	6	---	---	7	---	3	---	1	---	---	4	---
Percentage of rock material	15.8	20.2	42.6	4.9	16.5	---	---	---	---	---	---	---	---	---	4.3	17.3	51.6	21.4	5.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Points	Occurrence of points of indicated type and material at—																											
	Marlow Lakes							Mehring							Oglesby							Old Indian Rd. 1						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A																6				6	4.7							
Type B	2					2				1			1	0.6			8			8	6.3		1				1	7.2
Type C	1	2				3				2	1	1	4	2.3	2	1	26	8	3	40	31.3		3				3	21.4
Type D	1					1											5	3		8	6.3	1	1				2	14.3
Type E																	5	2		7	5.4							
Type F										4			4	2.3		2				2	1.6							
Type G										5			5	2.9		1				1	.8							
Type H								1	2	7		2	12	7.1	1					1	.8							
Type I								1	5	29		5	40	23.4		2	12			14	10.9							
Type J								1	1	12	1	6	21	12.3			7			7	5.4		2				2	14.3
Type K								3	4	23		3	33	19.3	1	3	10		1	15	11.8		2	3			5	35.6
Type L		2				2		2	5	11		3	21	12.3	1	1	3		3	8	6.2							
Type M									1	14		1	16	9.3		1				1	.7		1				1	7.2
Type N									1	3		2	6	3.5		1	2	4		7	5.4							
Type O																												
Type P										1			1	.6	1					1	.8							
Type Q								2	3				5	2.9					1	1	.8							
Type R																												
Type S																												
Type T																												
Type U										1			1	.6														
Type V										1			1	.6		1				1	.8							
Total	4	4				8		10	22	114	2	23	171	100	6	19	78	17	8	128	100	1	10	3			14	100
Percentage of rock material								5.9	12.8	66.7	1.2	13.4			4.7	14.7	60.8	13.5	6.3			7.1	71.5	21.4				

TABLE 9.—*Projectile point and large blade analysis for Virginia sites*—Continued

Points	Occurrence of points of indicated type and material at—																																		
	Old Ind. Rd. 2							Occaneechi Is. 1							Stony Creek 1							Stony Creek 2							Stony Creek 3						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert.	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	8	----	----	8	1.3	----	----	1	----	----	1	0.5
Type B	----	----	1	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	3	10	15	1	----	29	4.7	----	----	----	----	----	----	----
Type C	----	1	----	----	----	1	----	----	----	----	----	----	----	----	----	4	1	----	----	5	5.4	2	120	29	4	----	155	25.1	----	1	2	----	----	3	1.4
Type D	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2	73	13	1	2	91	14.8	----	4	1	----	----	5	2.3
Type E	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2	----	2	1.8	----	13	----	4	----	17	2.8	----	7	2	----	6	15	7.0
Type F	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	3	----	----	----	3	2.8	----	8	2	1	----	11	1.8	----	6	----	----	1	7	3.3
Type G	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2	----	3	----	----	5	.8	----	----	----	----	----	----	----
Type H	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	3	----	----	3	6	5.5	2	11	3	1	----	17	2.8	----	4	1	----	----	5	2.3
Type I	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	6	6	----	----	12	11.0	3	28	9	1	----	41	6.6	----	18	4	----	----	22	10.3
Type J	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7	2	----	3	12	11.0	----	29	7	1	3	40	6.4	----	22	7	----	1	30	14.0
Type K	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	6	1	----	5	12	11.0	2	33	3	----	3	41	6.6	----	18	3	1	1	23	10.8
Type L	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	22	1	----	5	28	25.8	7	87	10	----	14	118	19.1	----	58	8	----	1	67	31.3
Type M	----	----	2	----	----	2	----	----	----	----	----	----	----	----	----	4	1	----	1	6	5.5	----	19	5	----	5	29	4.7	----	11	4	----	1	16	7.5
Type N	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	4	2	----	----	6	5.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type O	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	3	2	----	----	5	.8	----	----	----	----	----	----	----
Type P	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	1	.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type Q	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	----	----	5	10	9.2	----	10	----	----	----	10	1.6	----	20	----	----	----	20	9.3
Type R	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	3	----	----	----	3	2.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type U	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Type V	----	----	----	----	----	----	----	----	1	----	----	----	1	----	----	----	2	----	----	2	1.8	----	1	----	----	----	1	.1	----	----	----	----	----	----	----
Total	----	1	3	----	----	4	----	----	1	----	----	----	1	----	----	67	16	2	23	108	100	23	445	109	14	27	618	100	----	169	33	1	11	214	100
Percentage of rock material	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	62.0	14.8	1.9	21.3	----	----	3.8	72.0	17.6	2.2	4.4	----	----	----	79.0	15.3	.5	5.2	----	----

Points	Occurrence of points of indicated type and material at—																											
	Stony Creek 4							Tice							Tisdale							Tye River Forks						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A			3			3	3.2											2		2								
Type B		3	1			4	4.2				2		2				2			2								
Type C		7	5			12	12.6								3					3			1				1	
Type D		5	2			7	7.4																					
Type E																												
Type F		2	1			3	3.2																					
Type G																												
Type H		2	2		1	5	5.3																					
Type I																	1			1				1			1	
Type J		6				6	6.3																	1			1	
Type K		2			2	4	4.2																					
Type L		32	1	1		34	35.7																					
Type M		5	2			7	7.4																					
Type N		4	2			6	6.3									1				1								
Type O		1	1			2	2.1																					
Type P																												
Type Q																												
Type R																												
Type S																												
Type T																												
Type U																												
Type V		2				2	2.1																					
Total		71	20	1	3	95	100				2		2		3	1	3	2		9			1	2			3	
Percentage of rock material		74.8	21.1	1.0	3.1																							

TABLE 9.—*Projectile point and large blade analysis for Virginia sites*—Continued

Points	Occurrence of points of indicated type and material at—																											
	Tye River 3							Warren							Whippoorwill Hollow							Whitehall Sh.						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A																									4		4	4.7
Type B										4			4	2.8	1		2		1	4	5.5	4		7	8	3	22	25.6
Type C		1				1				17	2	4	23	15.9	13	5	9	6	2	35	48.0	13		15	2	2	32	37.2
Type D									1	11	1	2	15	10.4	2	3	6	1	2	14	19.2	1	1		1	2	5	5.7
Type E																	1	1		2	2.7	1		5			6	7.0
Type F								2	6	3		1	12	8.5								1	1	1			3	3.5
Type G																												
Type H										2			2	1.4				1		1	1.4			1			1	1.2
Type I			1			1				2			2	1.4				1		1	1.4	1		2		1	4	4.7
Type J			1			1		3		17		1	21	14.5			4			4	5.5							
Type K								4	3	16		2	25	17.3								1	2	1	1		5	5.7
Type L								1	3	10	1	1	16	11.2		1	1			2	2.7				1		1	1.2
Type M									1	2			3	2.0										3			3	3.5
Type N									1	7			8	5.5		1	5			6	8.1							
Type O																												
Type P																	2			2	2.7							
Type Q									4			2	6	4.2					1	1	1.4							
Type R																												
Type S									1				1	.7														
Type T									1				1	.7														
Type U									1				1	.7														
Type V									2	2			4	2.8			1			1	1.4							
Total		1	2			3		10	24	93	4	13	144	100	16	10	31	10	6	73	100	22	4	35	17	8	86	100
Percentage of rock material								6.9	16.7	64.6	2.8	9.0			21.9	13.7	42.4	13.8	8.2			25.6	4.6	40.7	19.8	9.3		

Points	Occurrence of points of indicated type and material at—																				
	Wingina							Yowell							Yowell Homestead						
	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage	Chert	Quartzite	White qtz.	Clear qtz.	Misc.	Total	Percentage
Type A				1		1	0.9														
Type B	1		5	1		7	6.2														
Type C	1	4	44		2	51	45.0	1		1			2	1.2			3			3	4.9
Type D		1	8		2	11	9.8	1		3			4	2.3							
Type E			1			1	.9														
Type F		1	4		1	6	5.3		1	3		1	5	2.9							
Type G										4			4	2.3							
Type H			1			1	.9			2	5	2	9	5.2		2	1			3	4.9
Type I		1	2			3	2.7	1	6	45		2	54	31.2		6	8		2	16	26.5
Type J		1	11			12	10.6			7			7	4.1		3	6			9	14.6
Type K			6			6	5.3		2	13		3	18	10.5			5		1	6	9.9
Type L			2			2	1.8	2	11	18		10	41	23.7		5	3		2	10	16.4
Type M										5		1	6	3.5	1					1	1.6
Type N			3	1		4	3.6	1	1	3		1	6	3.5			3			3	4.9
Type O																					
Type P									1				1	.5		1				1	1.6
Type Q		1				1	.9		10				10	5.8		3			2	5	8.2
Type R									3	1			4	2.3	2					2	3.3
Type S		2			1	3	2.7		1				1	.5							
Type T		1	1			2	1.8			1			1	.5		1				1	1.6
Type U					1	1	.9														
Type V			1			1	.9									1				1	1.6
Total	2	12	89	3	7	113	100	6	41	101	5	20	173	100	3	22	29		7	61	100
Percentage of rock material	1.8	10.6	78.7	2.6	6.3			3.4	23.6	58.6	2.8	11.5			4.9	36.1	47.5		11.5		

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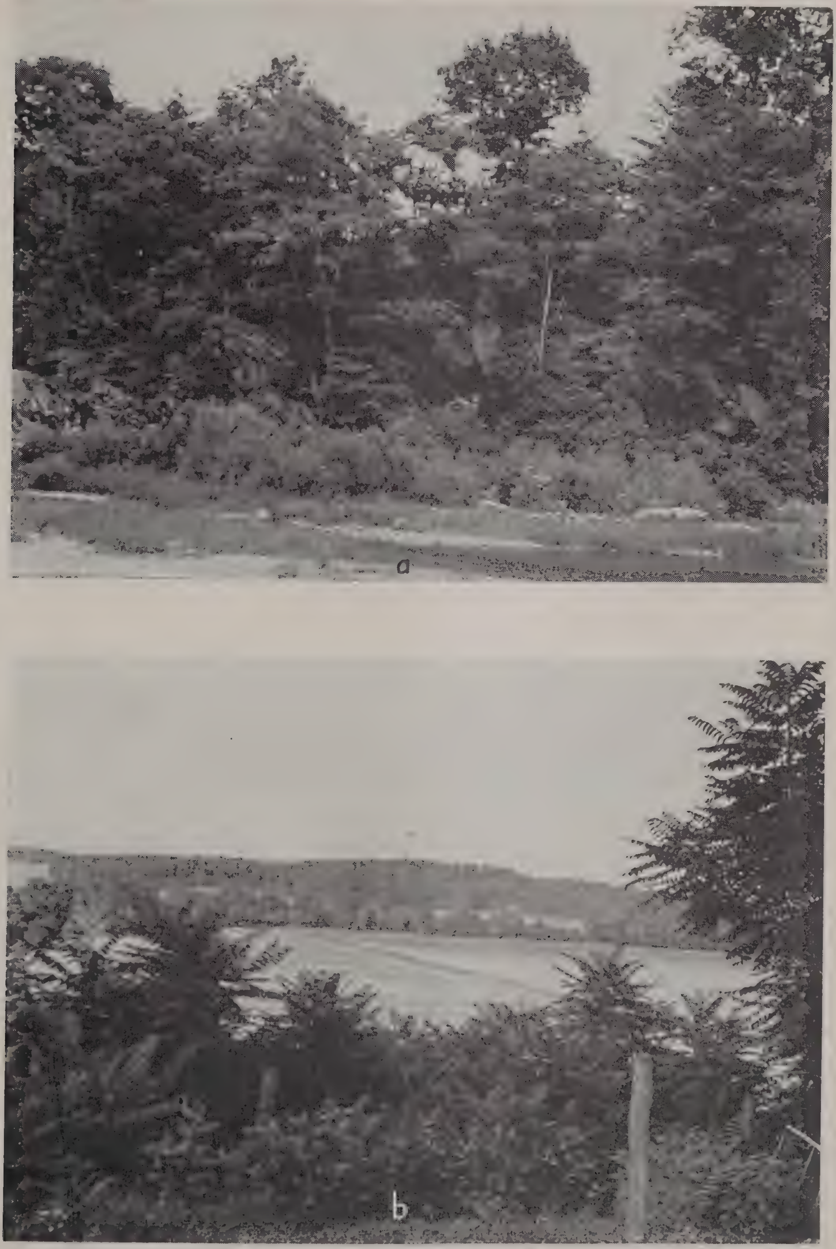
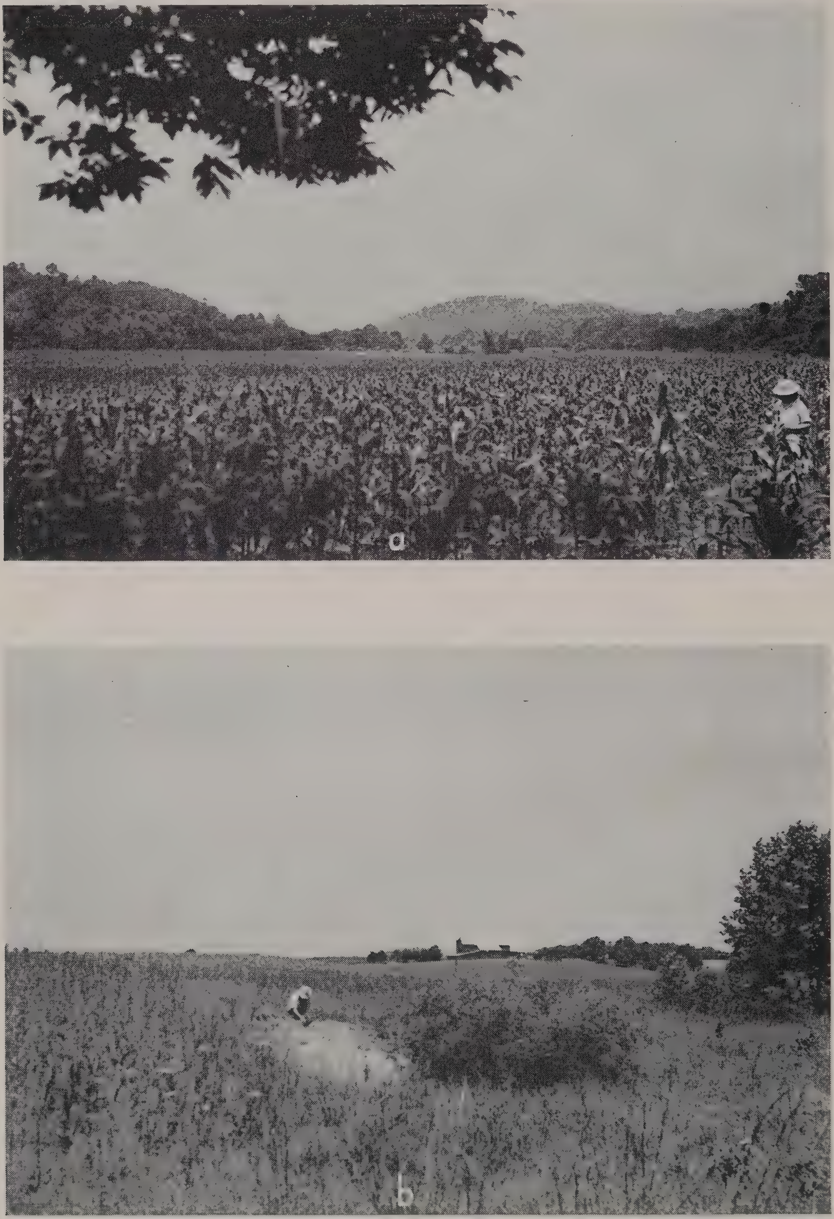
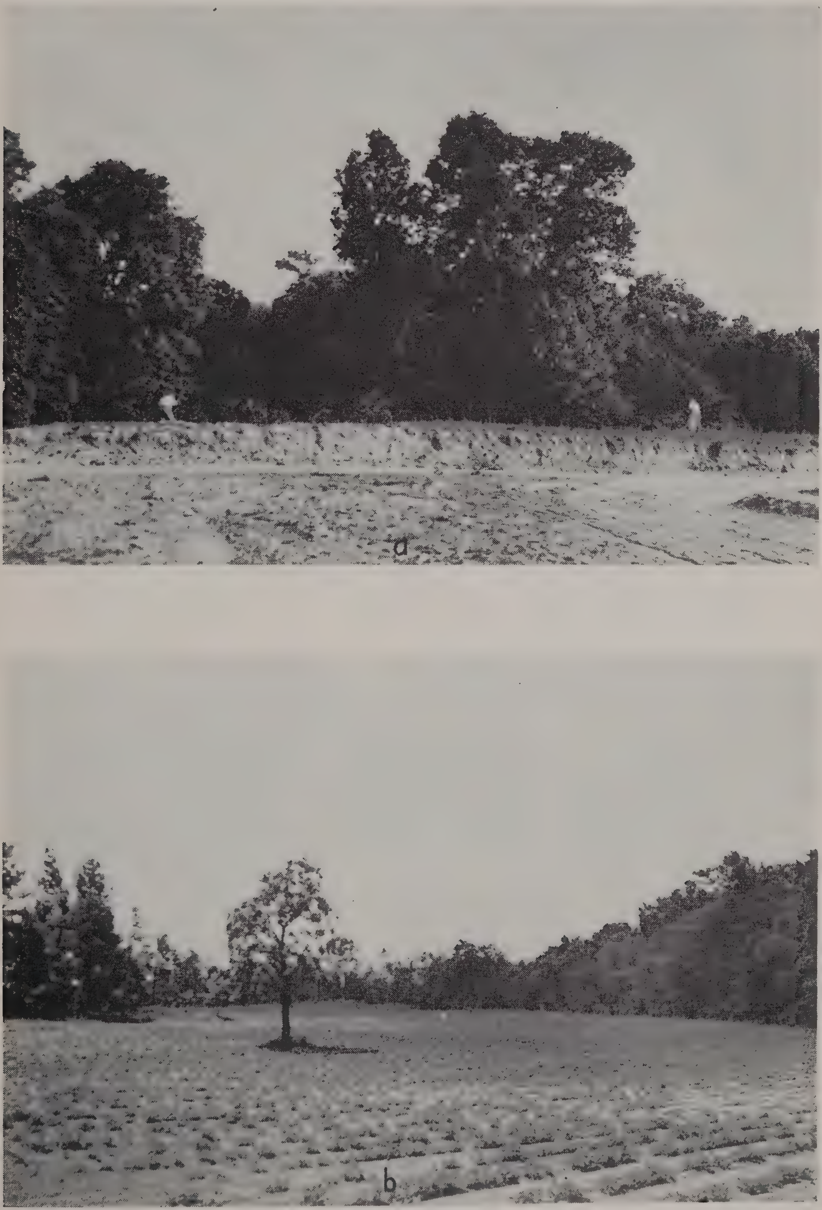


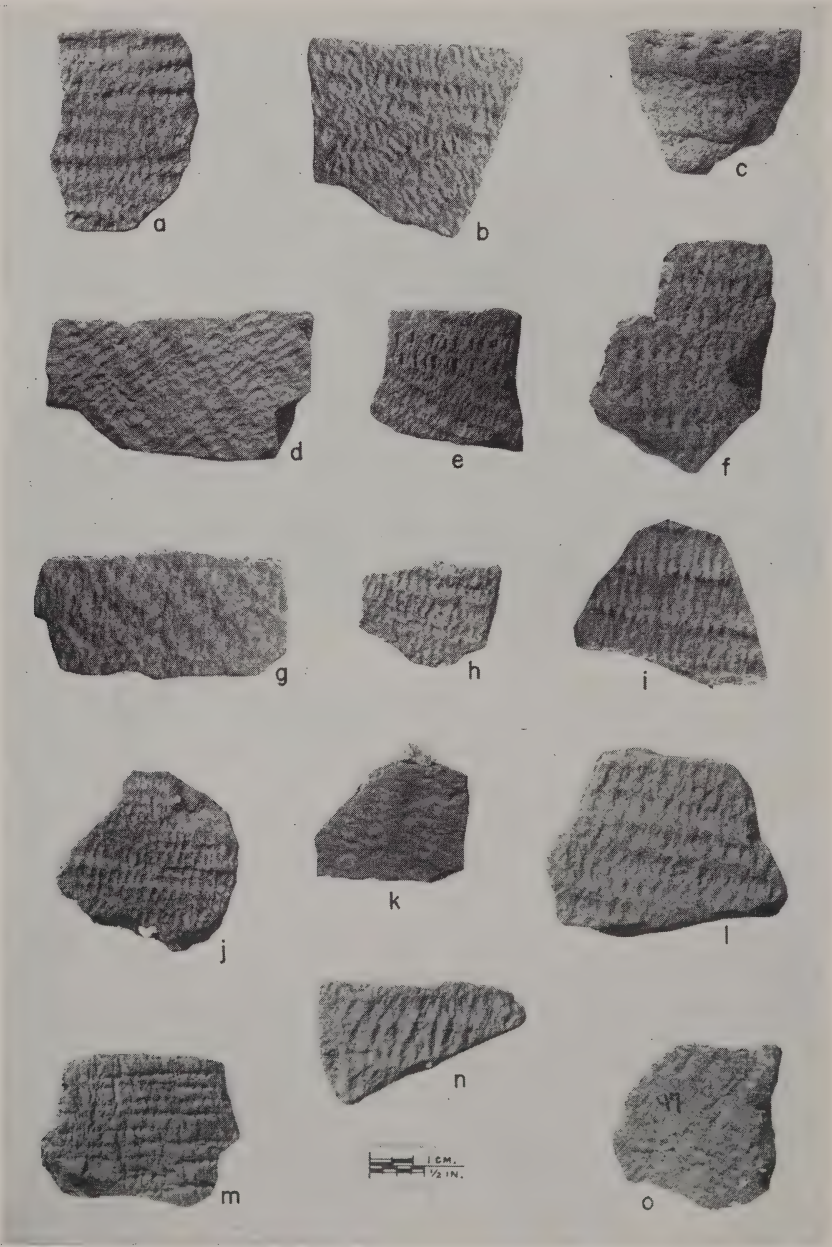
a, Whitehall Rock Shelter with two persons standing in it. *b*, Carr's Brook site in the bottom land near center of picture.



a, Marlow Lakes site under cultivation. *b*, Lipscomb site.



a, Pottery Hill site. *b*, Stony Creek 4 site.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1 CM.
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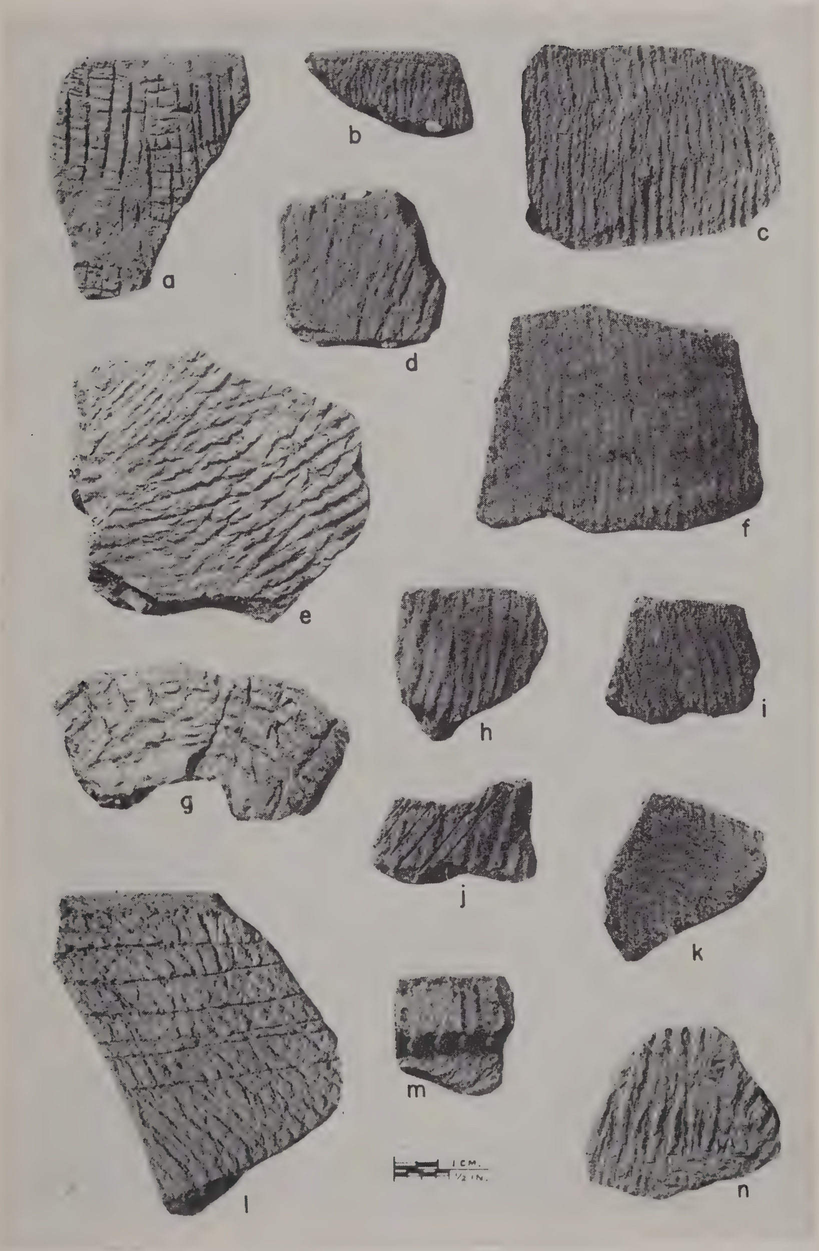
Albemarle Series: *a–o*, Albemarle Fabric Impressed. Note hunks of crushed quartz temper in *j* and *k*. Smooth interiors, except occasionally fabric impressed as shown in *o*.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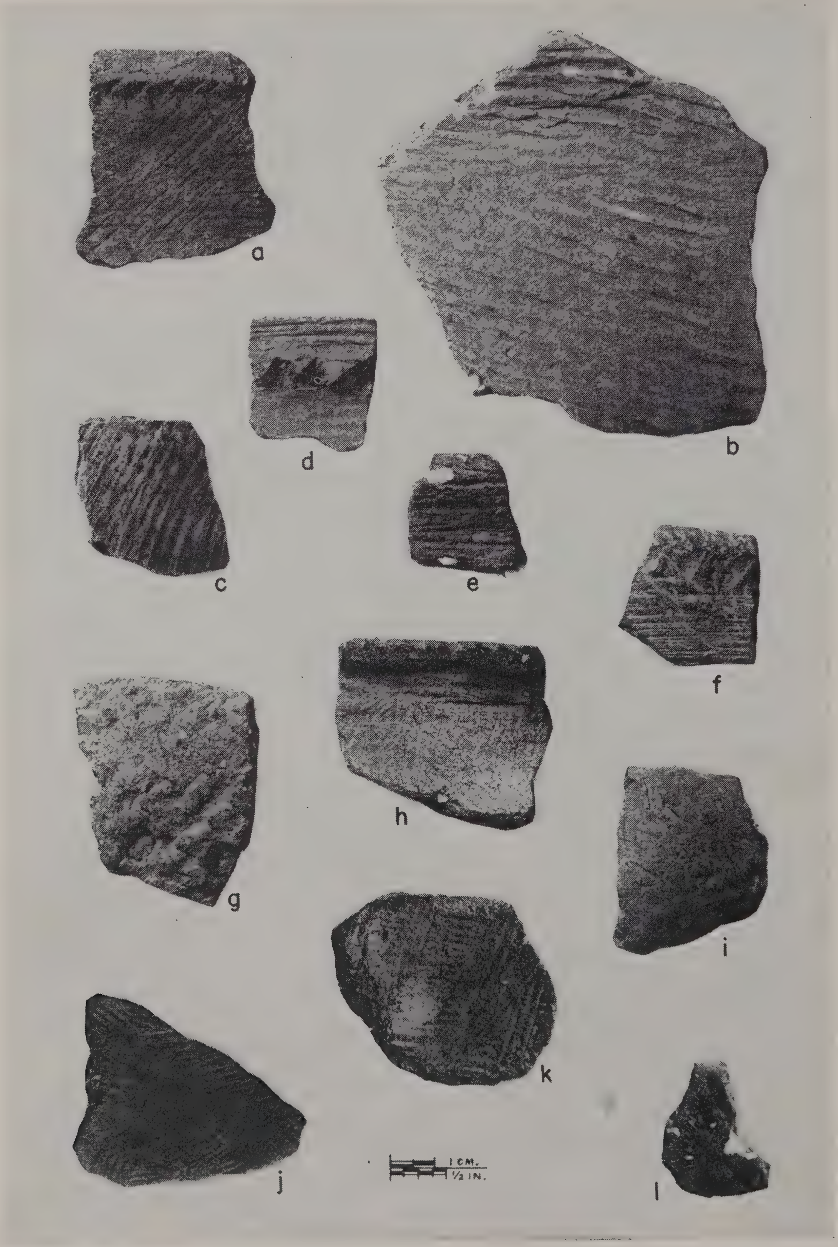
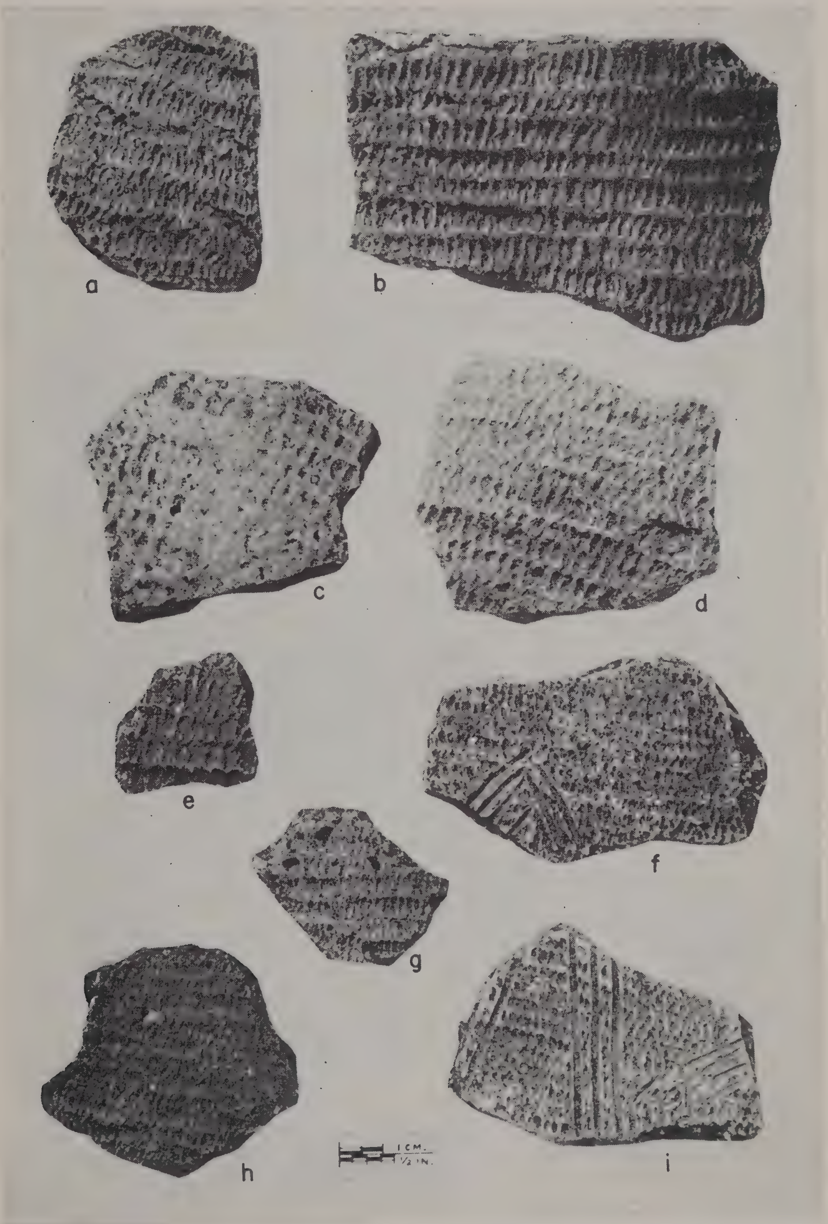
Albemarle Series: *a–n*, Albemarle Cord Marked; *g*, a basal sherd. Incision on top of cord marking, shown in *j*, is rare.



Albemarle Series: *a-f*, Albemarle Simple Stamped; *g*, Albemarle Net Impressed; *h–k*, Albemarle Scraped; *l*, Albemarle Plain. Note large hunks of crushed quartz temper in *b*, *e*, and *l*.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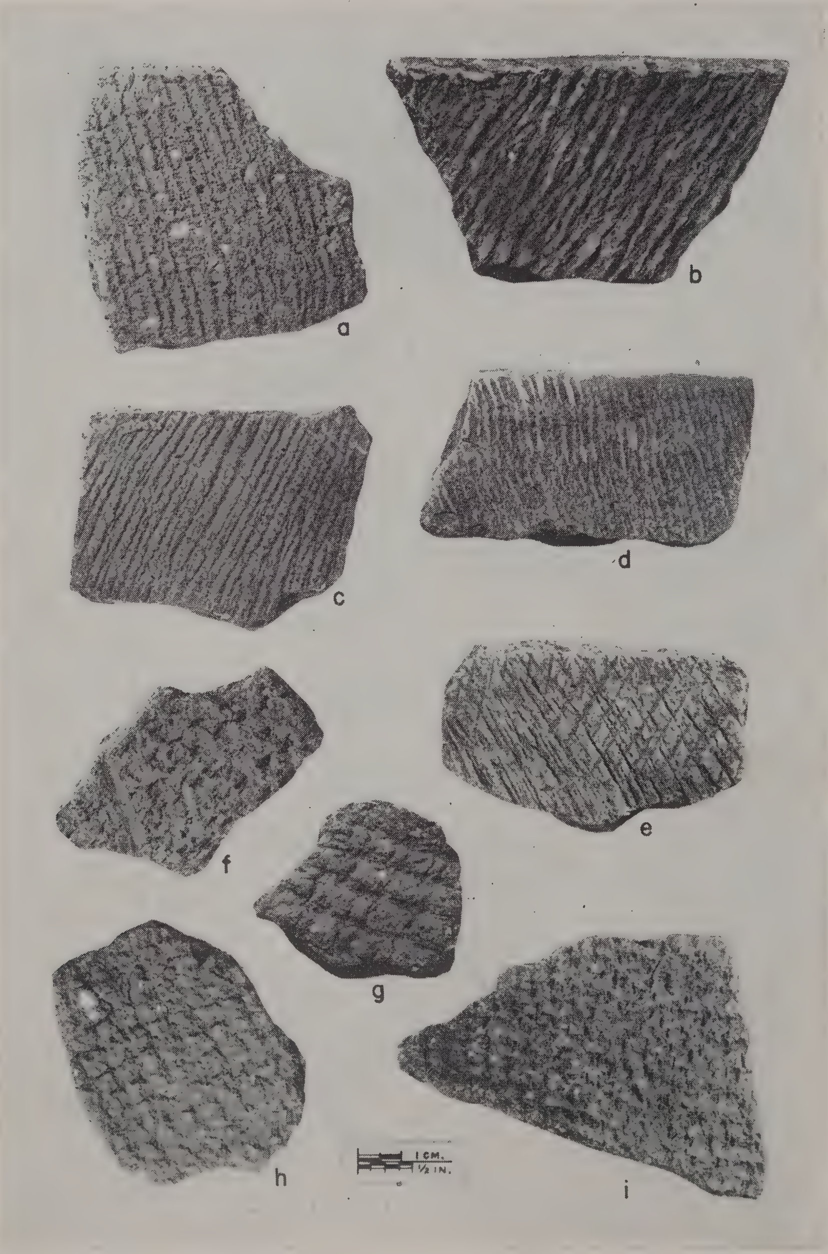
Chickahominy Series: *a–i*, Chickahominy Fabric Impressed; *f*, *i*, an incised variety on fabric-impressed surface.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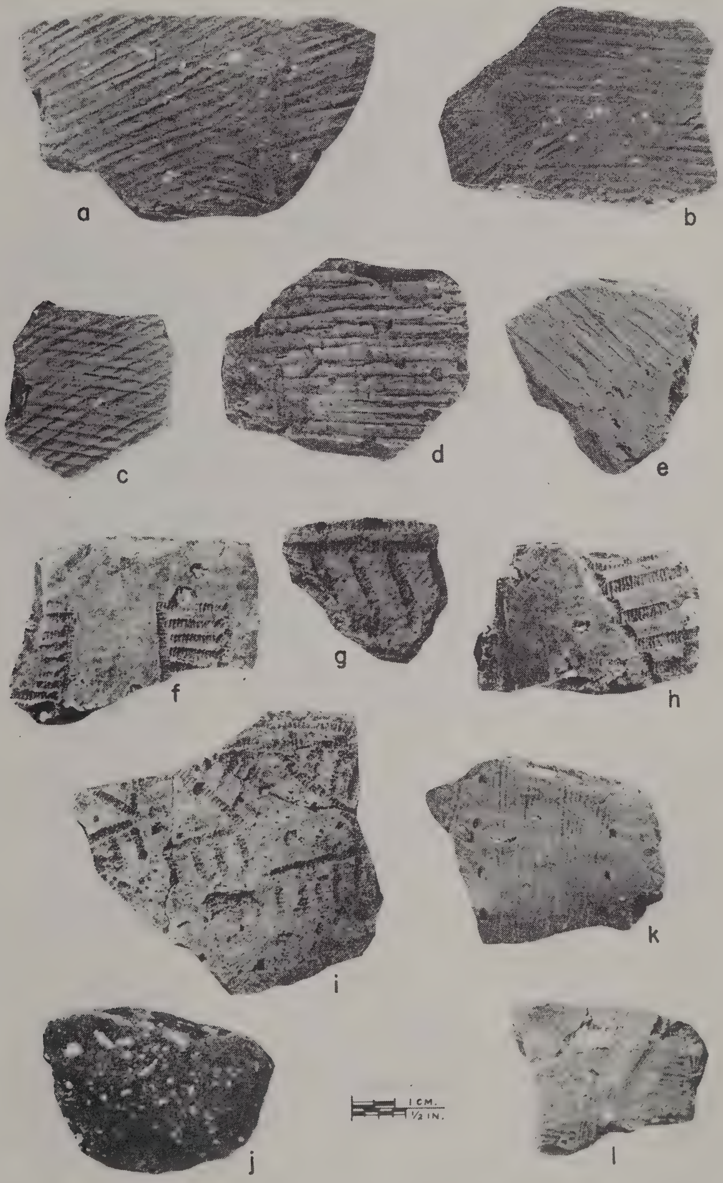
Chickahominy Series: *a–e*, Chickahominy Cord Marked; *f–i*, Potts Net Impressed and Roughened.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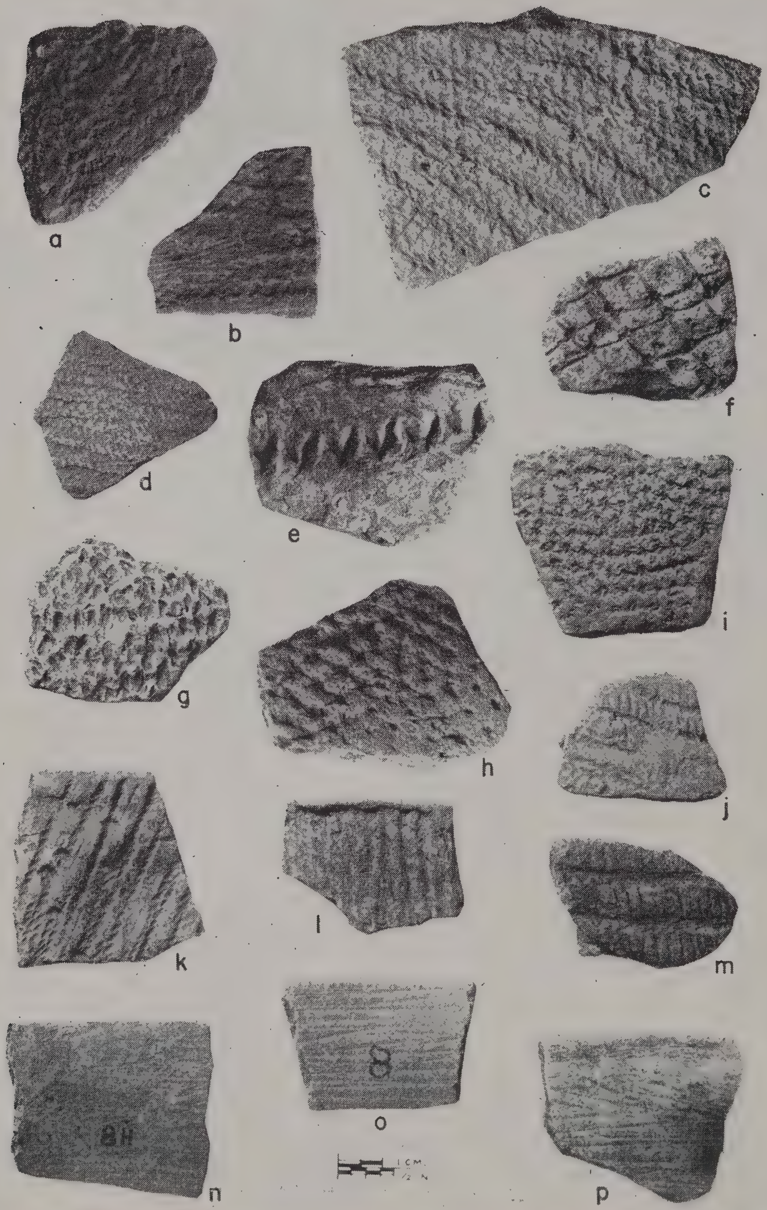
Chickahominy Series: *a–e*, Roanoke Simple Stamped; *f–i*, Potts Cord-Wrapped Dowel; *j*, Sussex Plain; *k*, *l*, Potts Scraped.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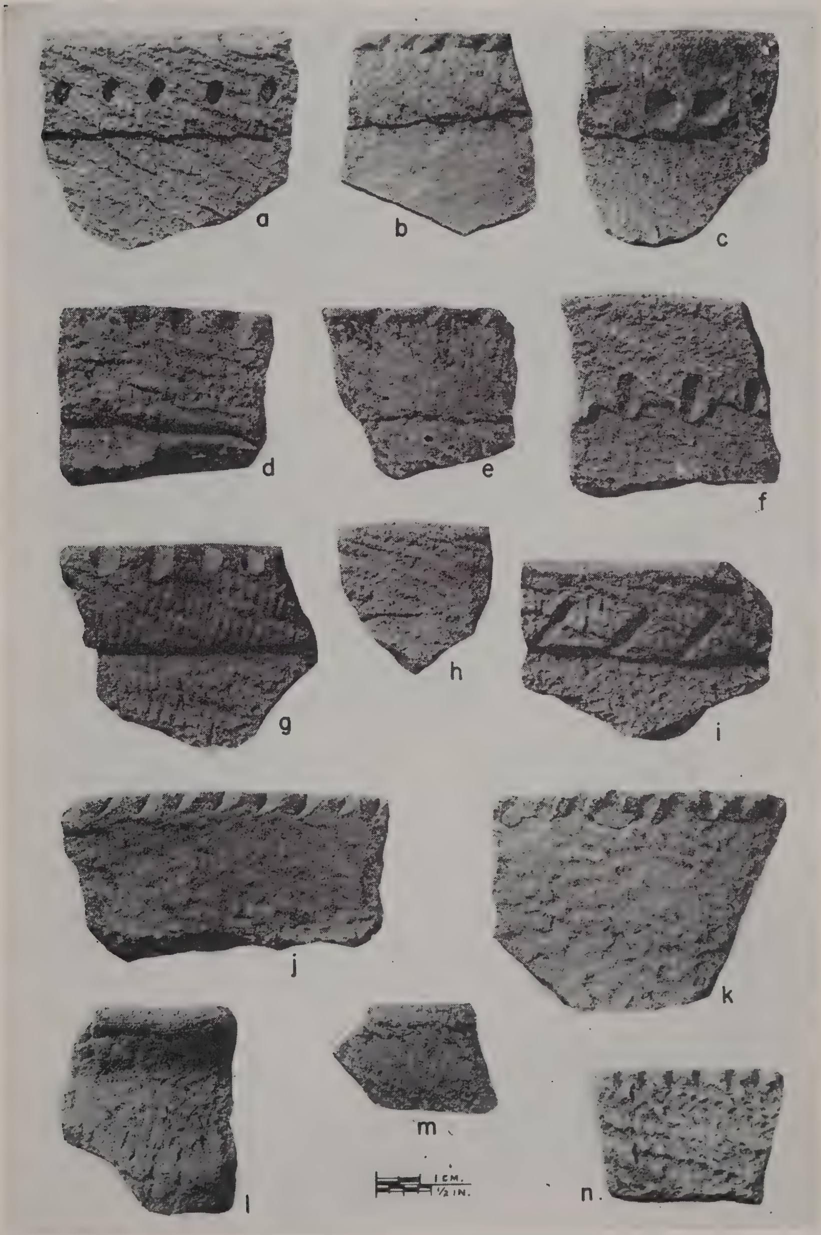
Clarksville Series: *a–i*, Clarksville Net and Fabric Roughened; *j, m*, Clarksville Fabric Impressed; *k, l*, Clarksville Cord Marked; *n–p*, Scraped interiors of Clarksville Series sherds.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1 CM.
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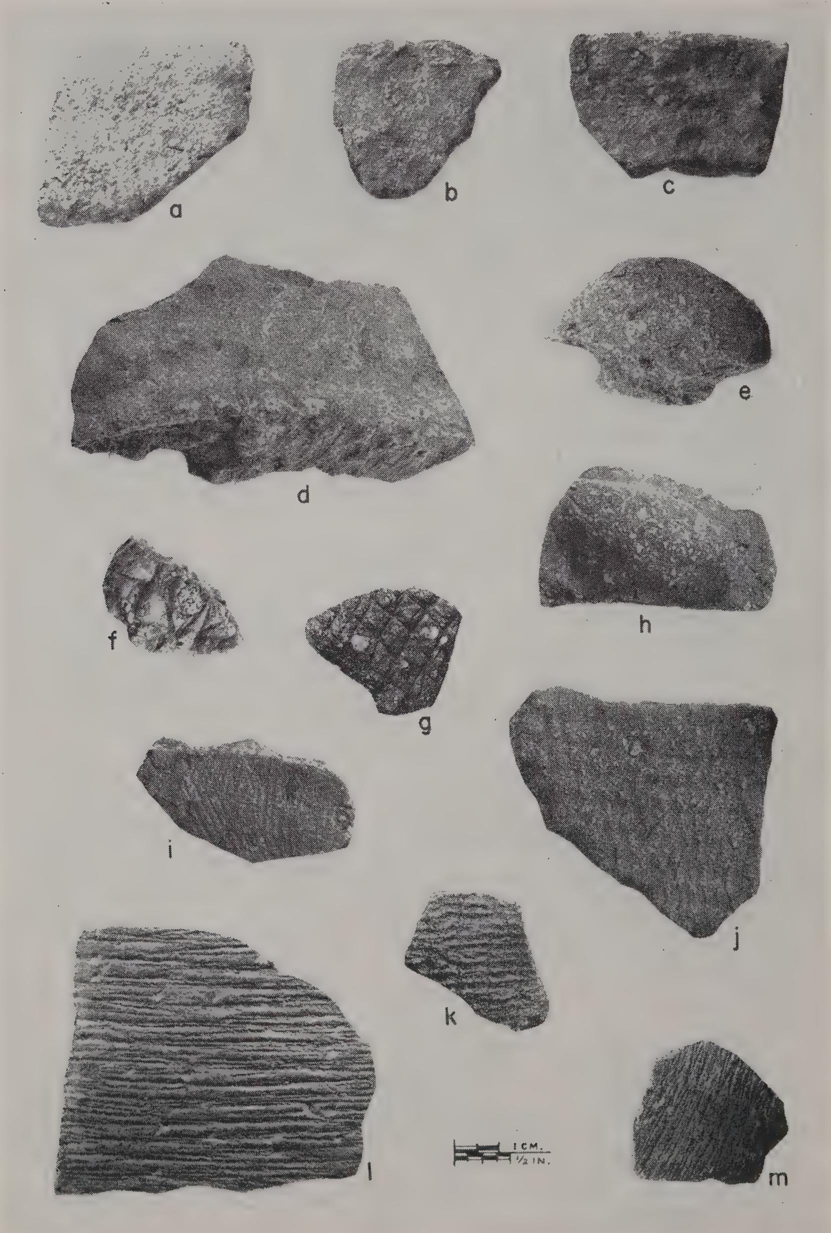
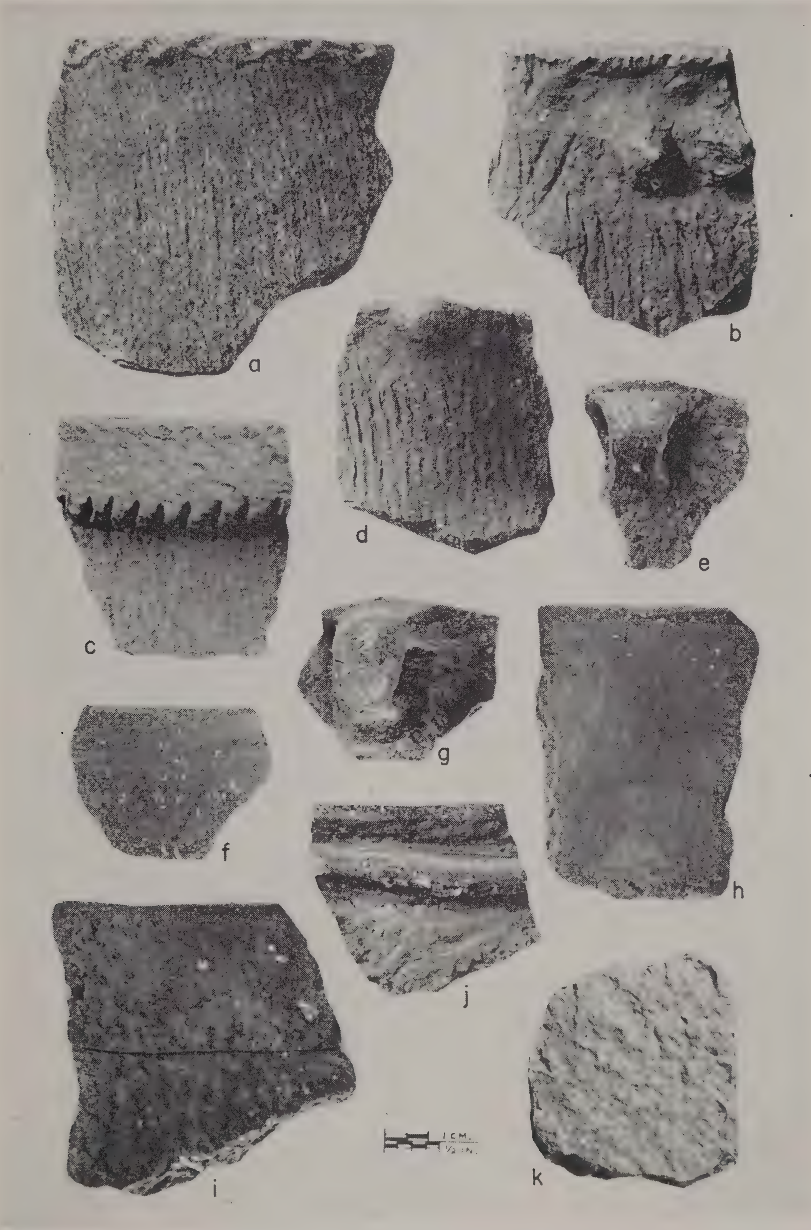
Clarksville Series: Rims only of Clarksville Fabric Impressed and Clarksville Net and Fabric Roughened.



Marcey Creek Series: *a–k,* Marcey Creek Plain; *e–h,* lugs of Marcey Creek Plain; *f–k,* fabric or net impressions on the flat bases of Marcey Creek Plain; *l, m,* Selden Island Cord Marked.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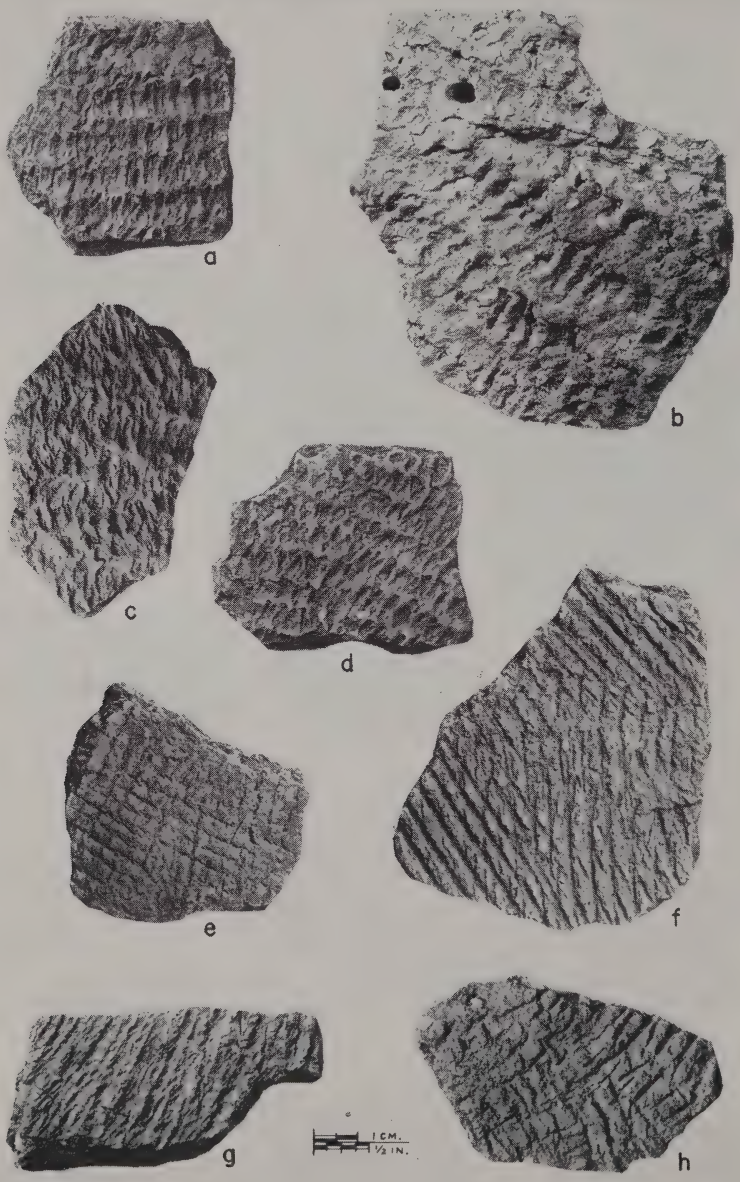
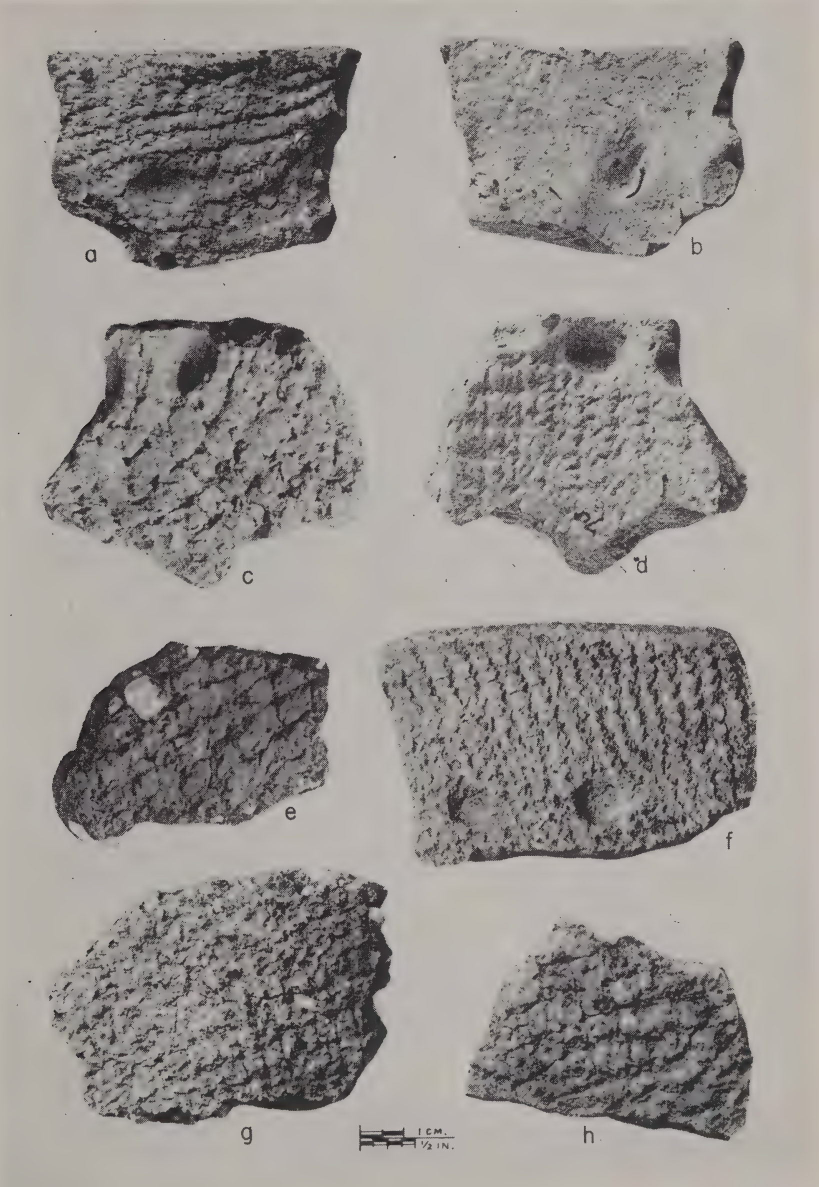
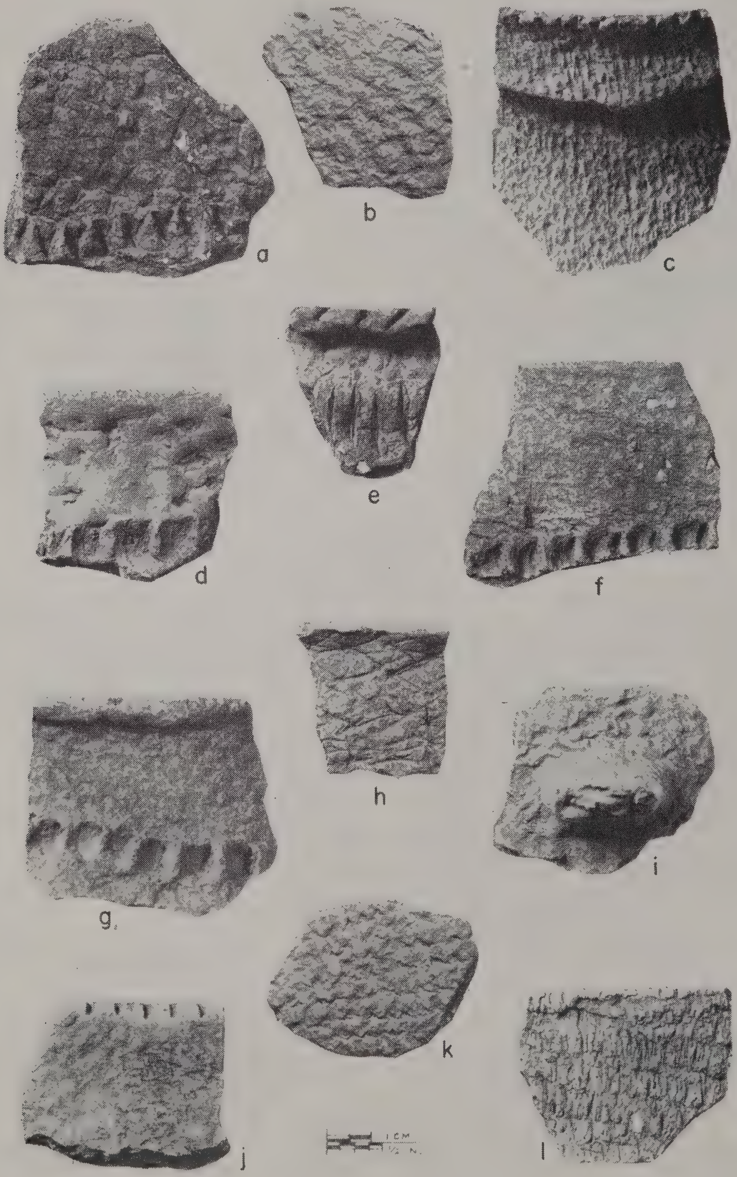
New River Series: *a–e*, New River Cord Marked; *f–h*, New River Plain; *i–k*, New River Knot Roughened and Net Impressed.



Prince George Series: *a–d*, Prince George Fabric Impressed; *e–h*, Prince George Cord Marked. Note large round pebble temper in *b* and *h*.



Prince George Series: *a–h*, Pottery Hill Net Impressed and Roughened; *a* and *c*, exteriors with *b* and *d* the interiors of the same sherds, showing finger pressing. Note large temper particles in *b*, *e*, and *g*.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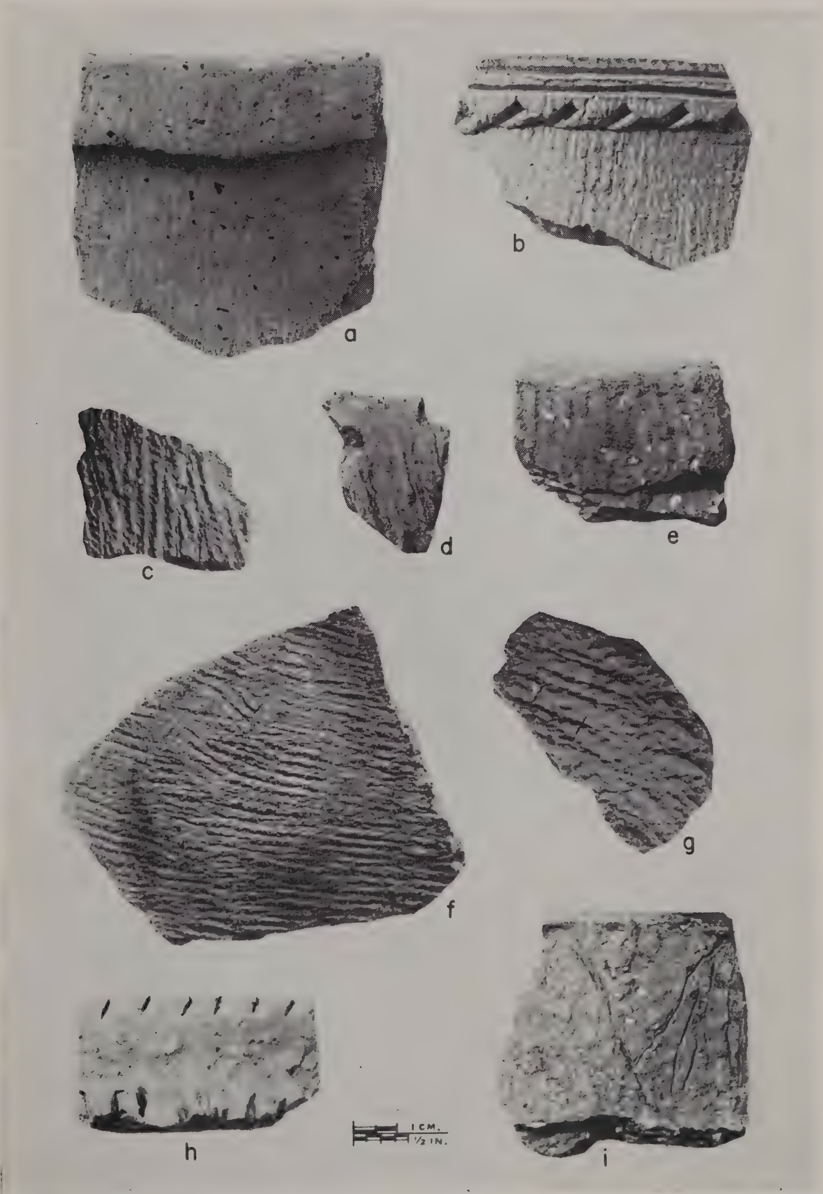
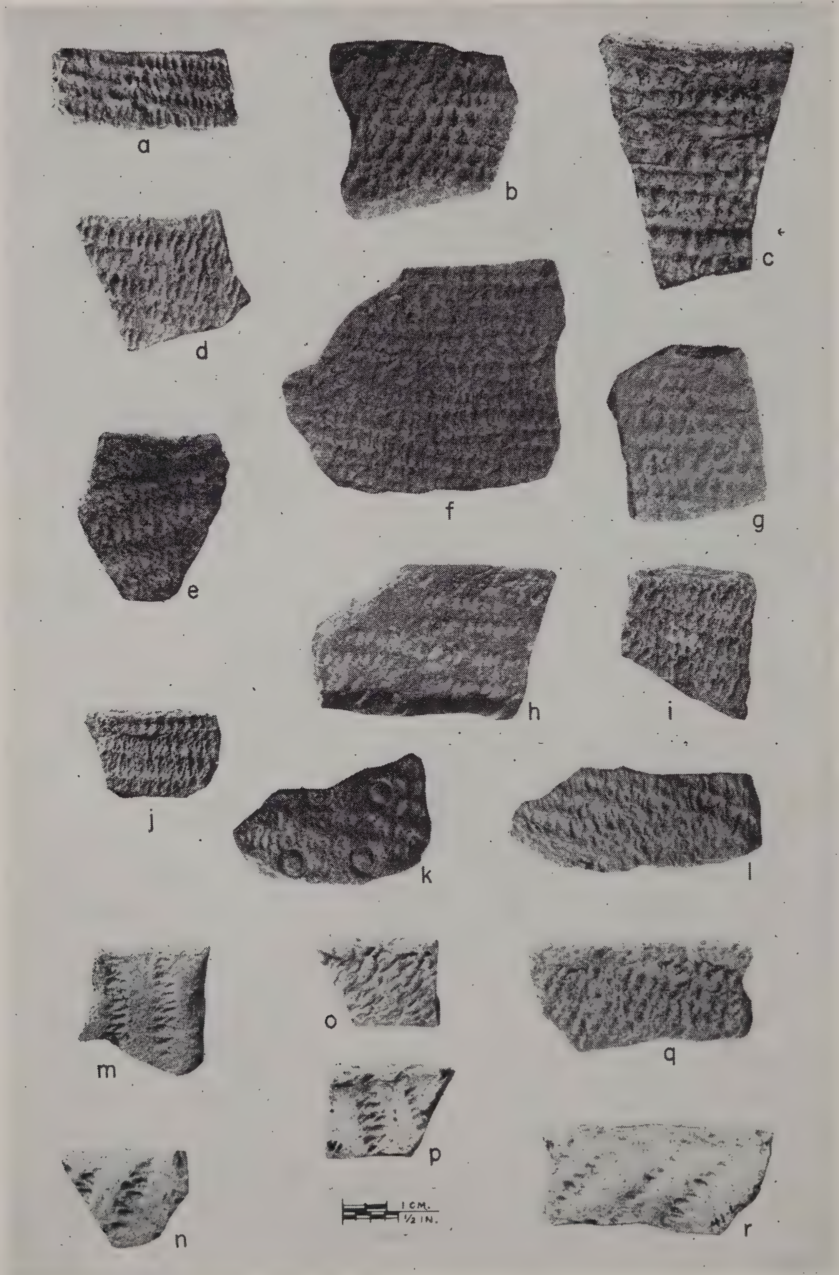
Radford Series: *a–j*, Radford Knot Roughened and Net Impressed; *k*, *l*, Radford Fabric Impressed.



Radford Series: *a–b*, Page Cord Marked; *c–g*, Radford Cord Marked; *h*, Radford Plain; *i*, Incisions on Radford Knot Roughened and Net Impressed.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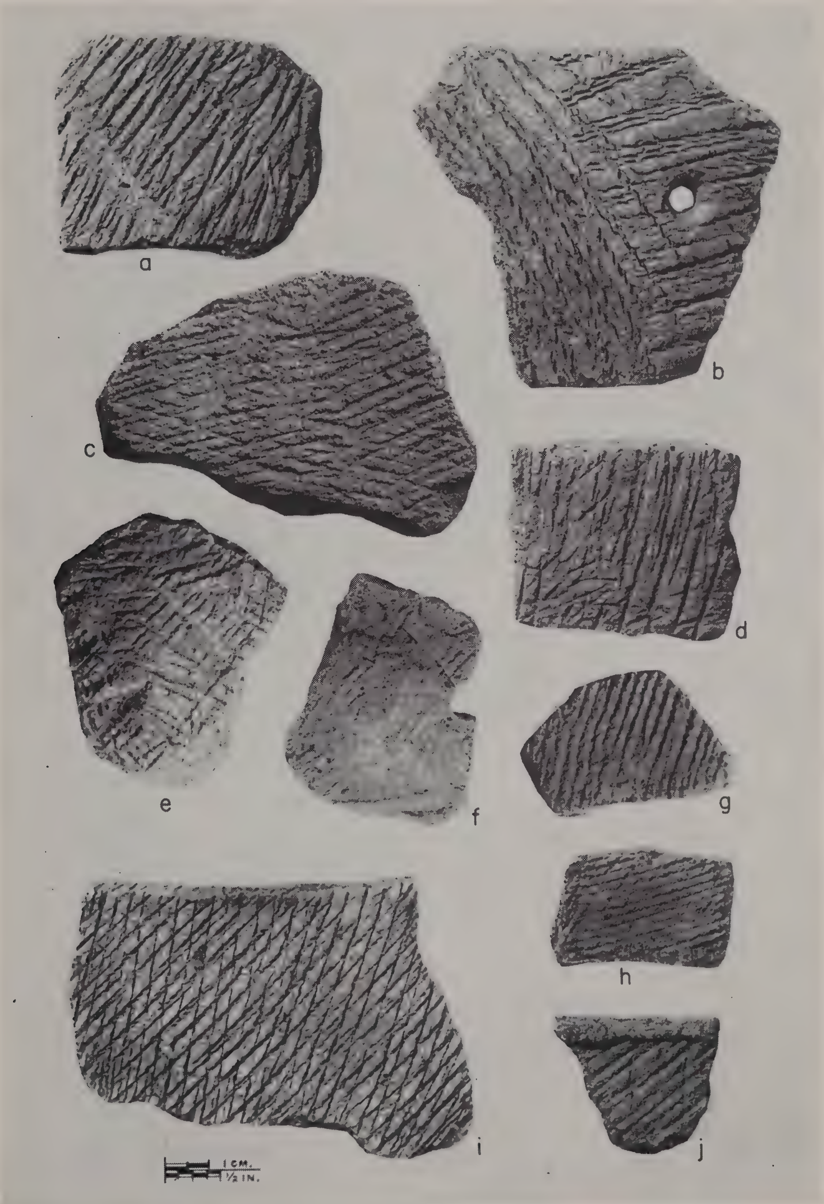
Stony Creek Series: *a–r*, Stony Creek Fabric Impressed; *p*, interior of sherd *o*; *r*, interior of *q; m* and *n* show cord-wrapped dowel impressions on inner lip of this type.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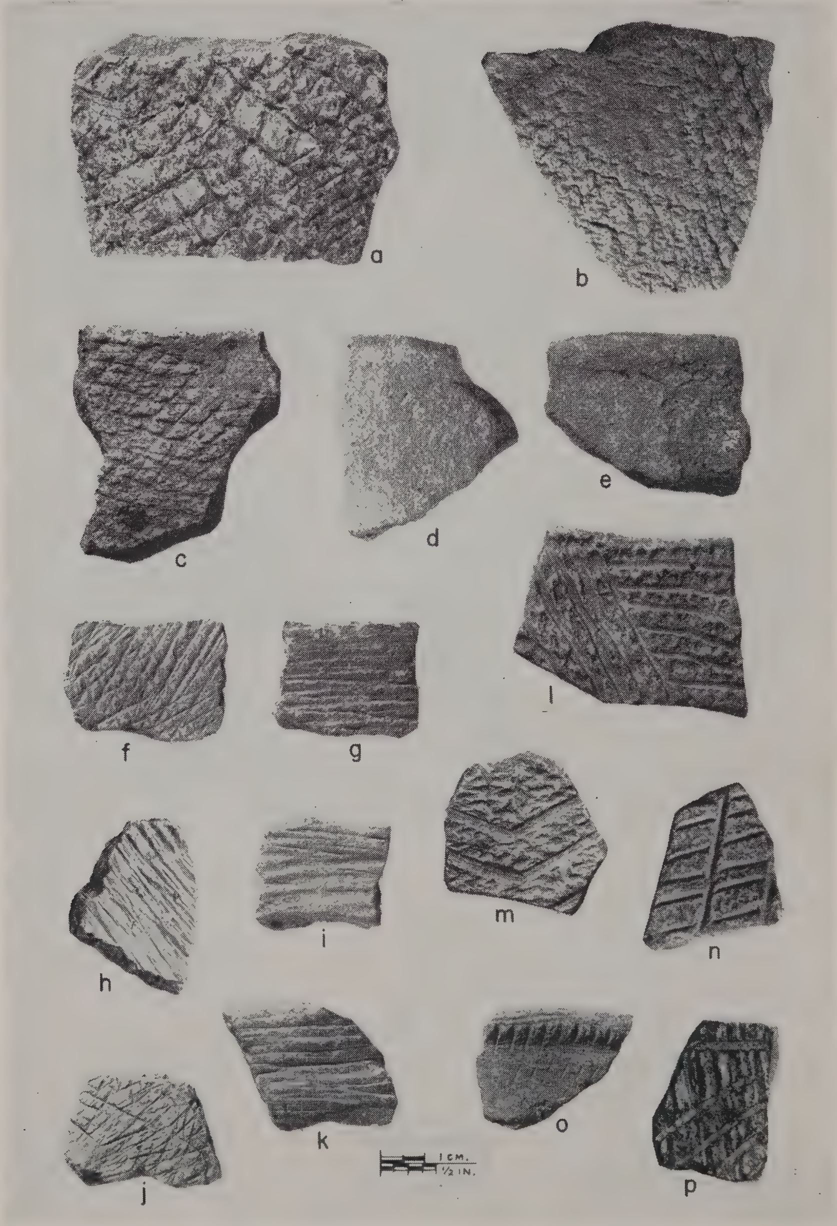
Stony Creek Series: *a–j*, Stony Creek Cord Marked; *e–f*, basal sherds.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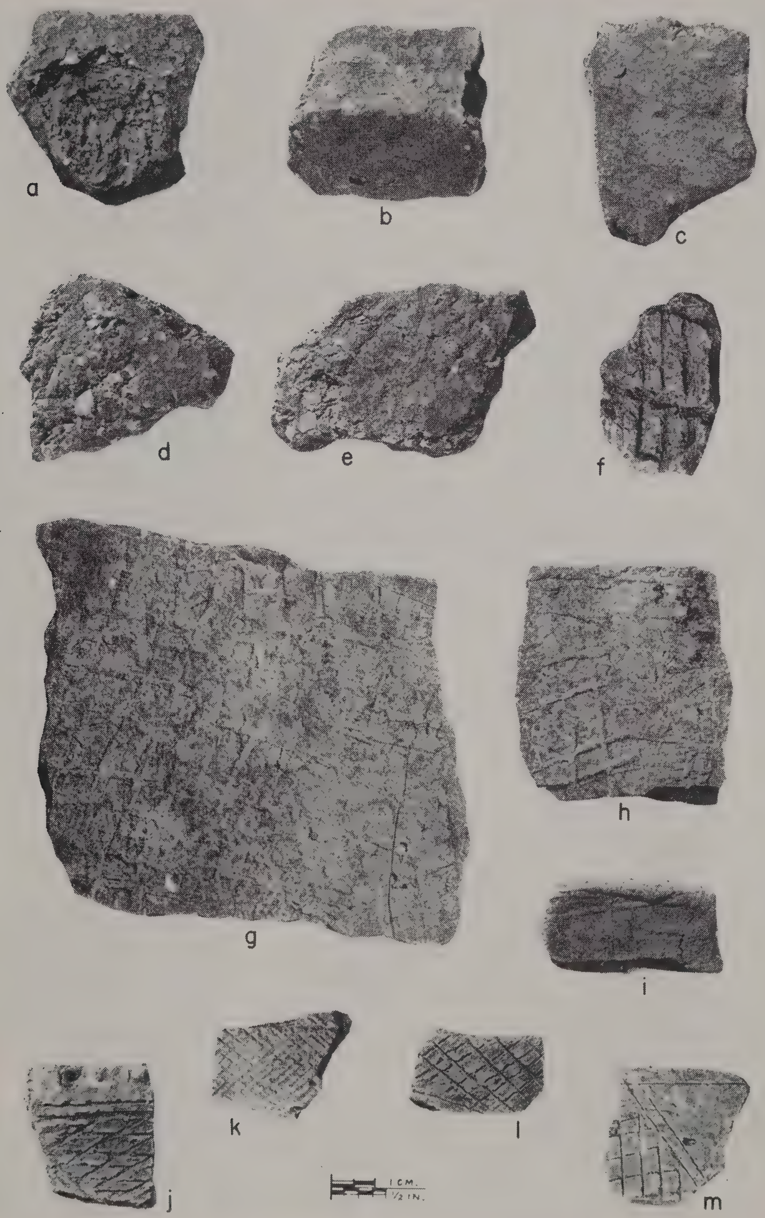
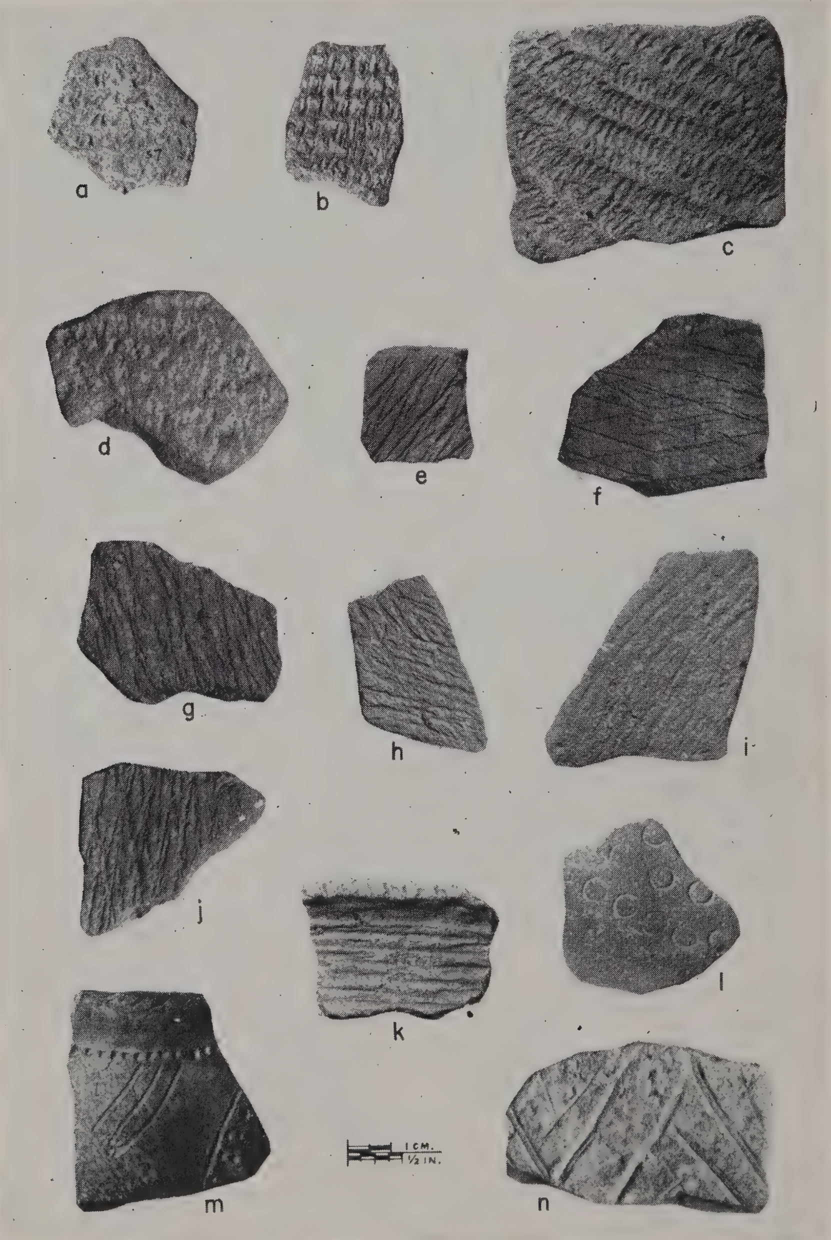
Stony Creek Series: *a–c*, Stony Creek Net Impressed and Roughened; *d–e*, Stony Creek Plain; *f–k*, Stony Creek Simple Stamped; *l–p*, Nottoway Incised.



Miscellaneous pottery types: *a–f*, Clay-sherd tempered sherds from Potts site; *f*, basal sherd; *g–i*, check-stamped sherds from Potts site; *j–m*, miscellaneous incised sherds from Potts site.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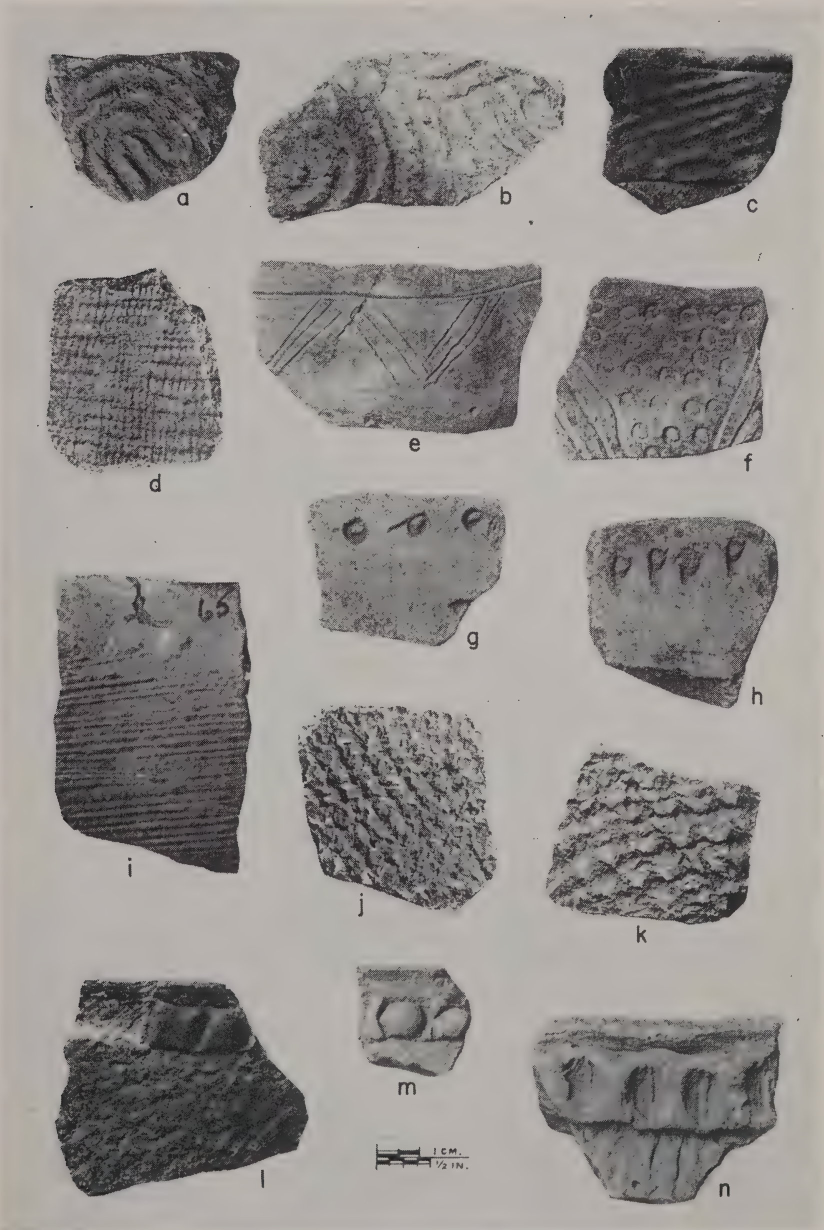
South-Central Ceramic Area unclassified sherds: *a–d*, fabric impressed; *e–j*, cord marked; *k*, simple stamped with a thong-wrapped paddle; *l*, punctate design; *m*, *n*, incised design.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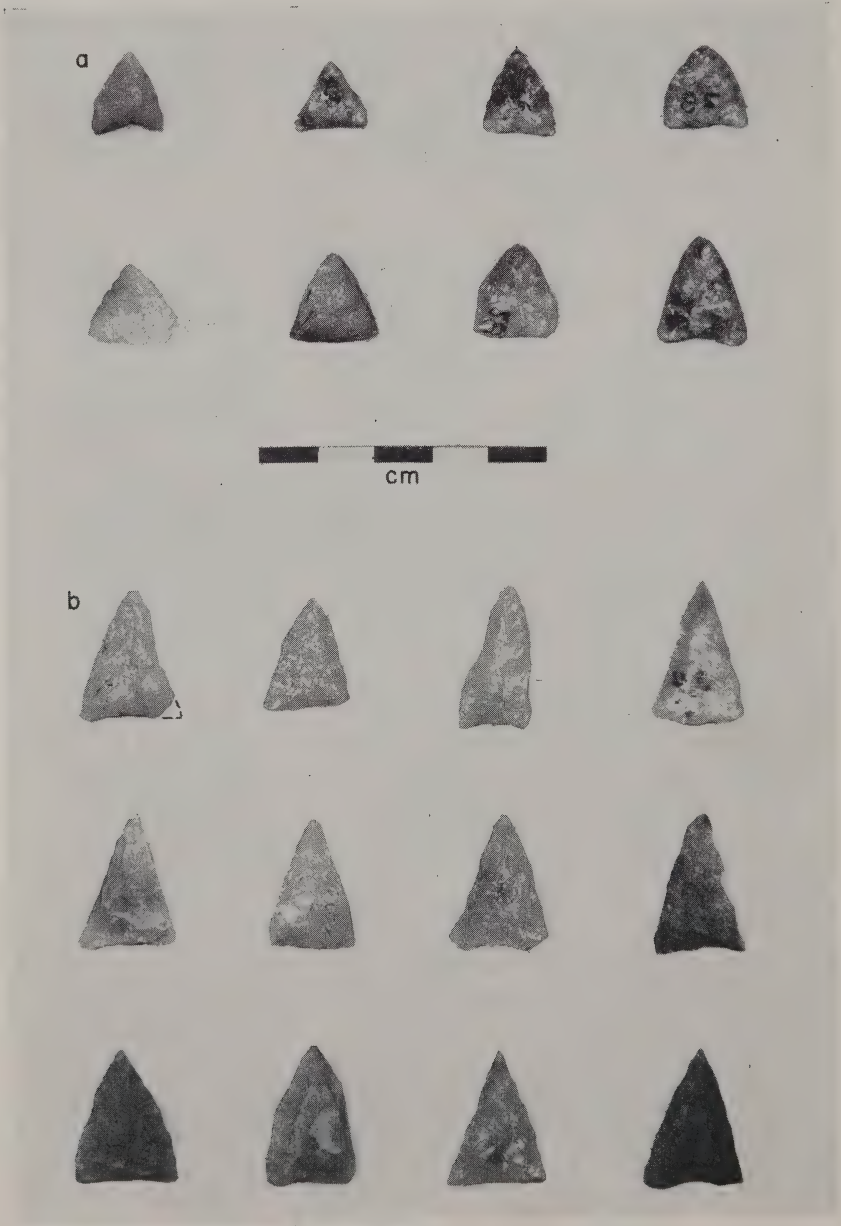
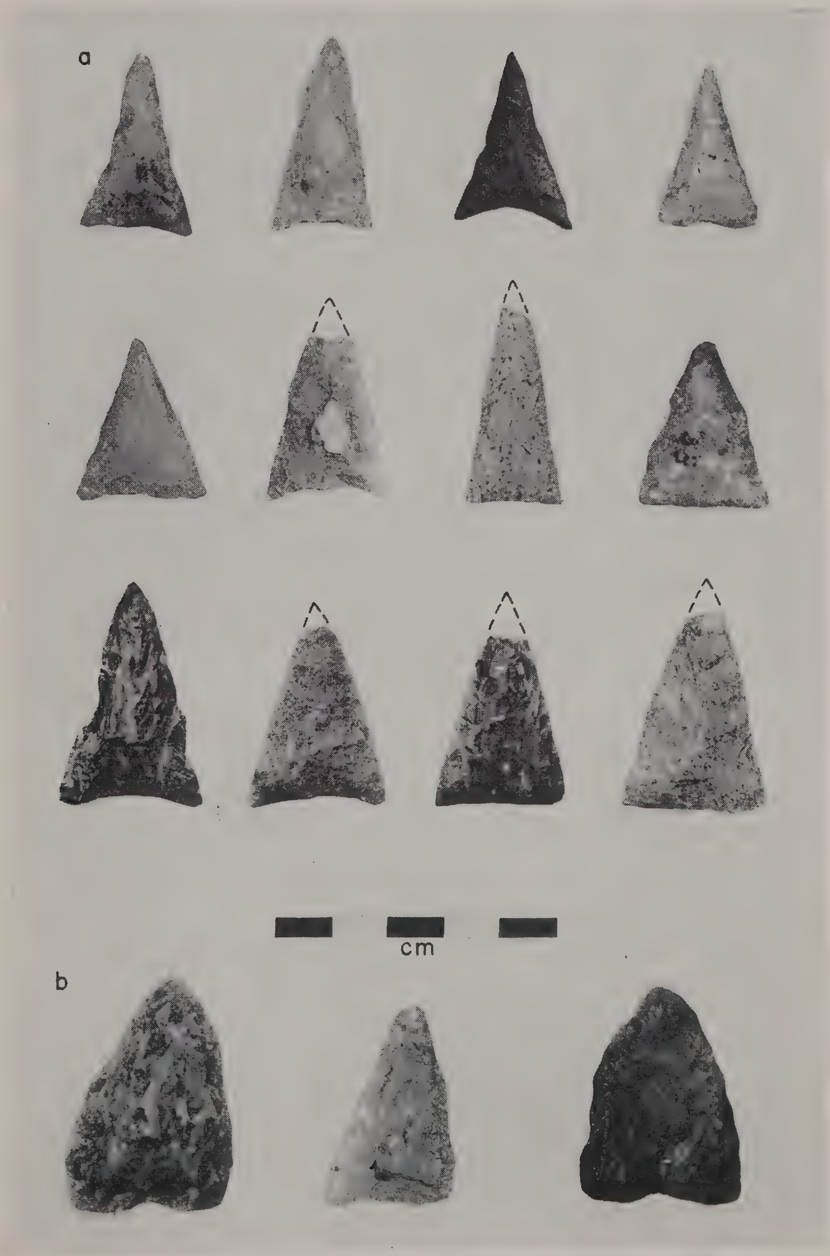
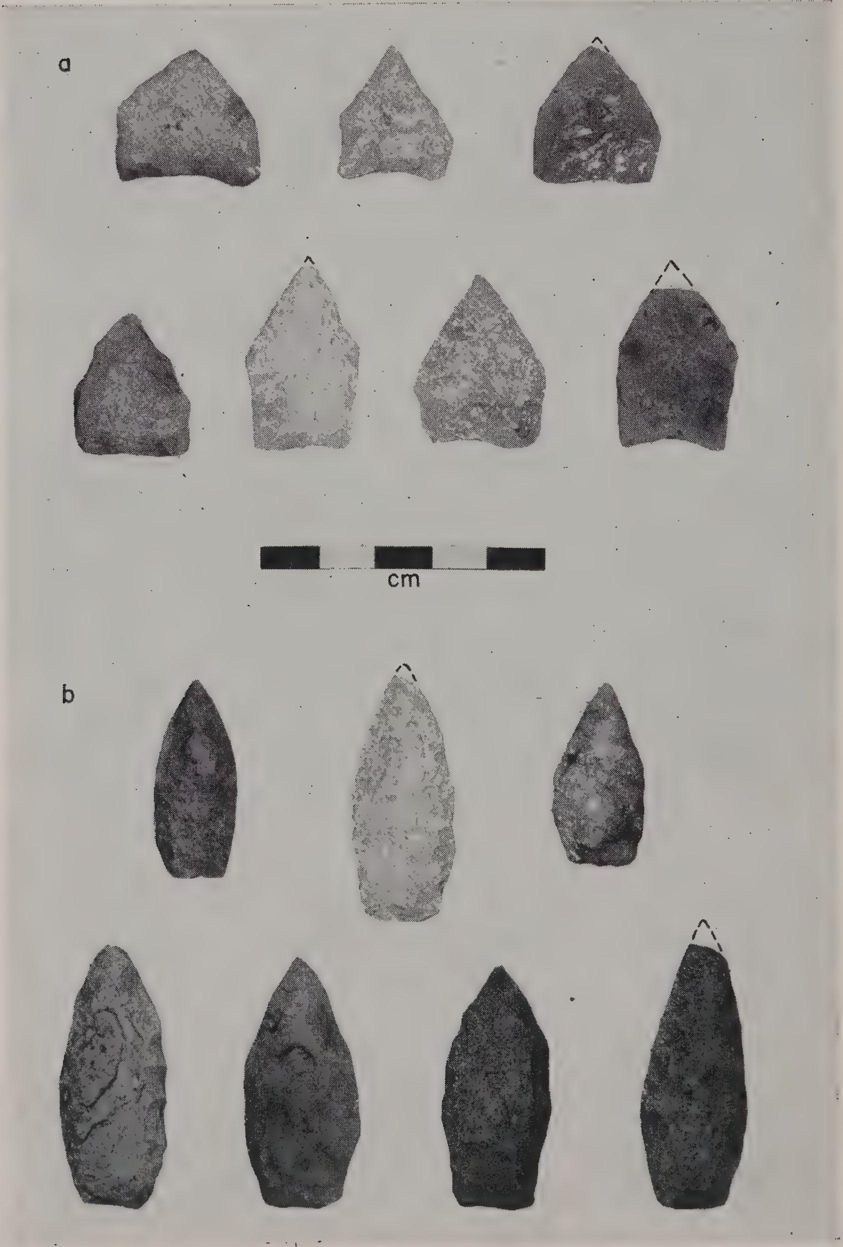
Sherds from Cornett site, Va.: *a–c*, Cornett Complicated Stamped; *d*, fabric impressed; *e*, *f*, incised; *g*, *h*, punctate; *i*, interior scraped; *j–l*, Net and Knot Roughened; *m*, *n*, applique strips along the neck.



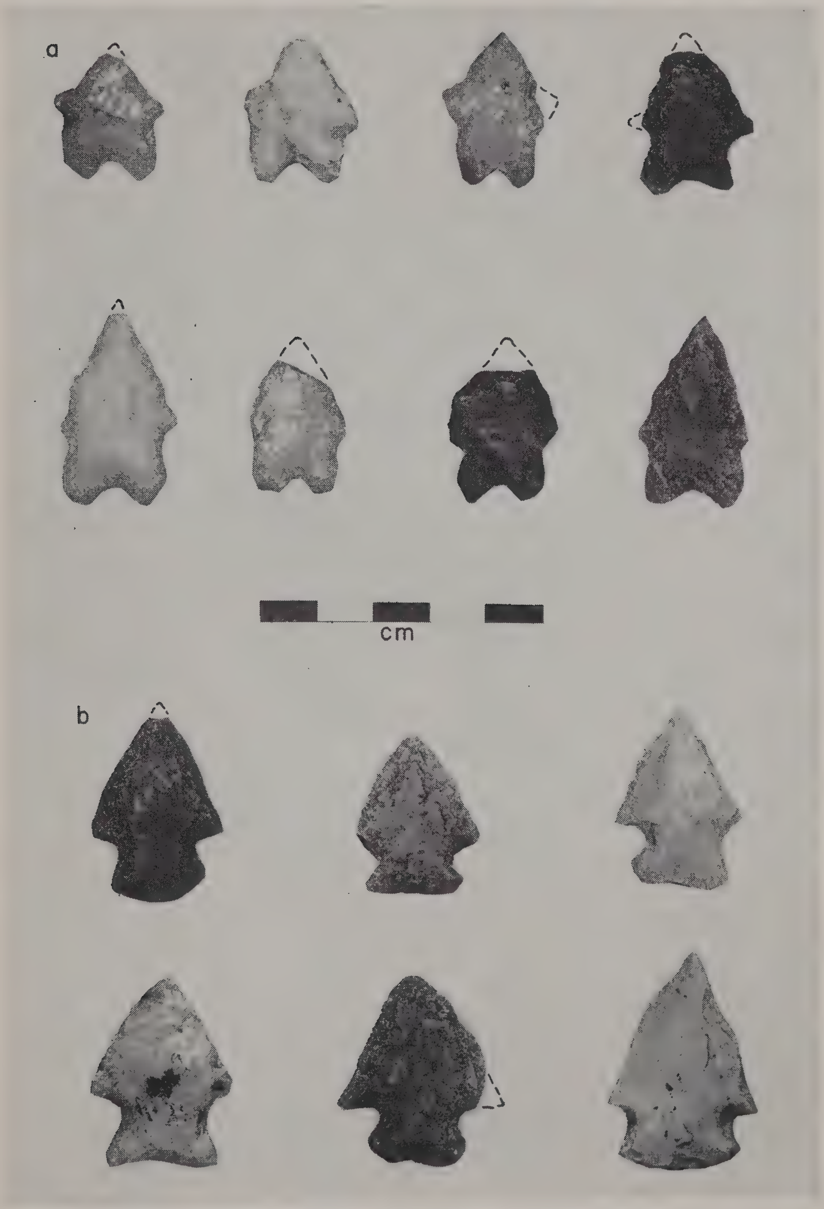
Projectile points: *a*, Type A, Small Triangular; *b*, Type B, Medium Triangular.



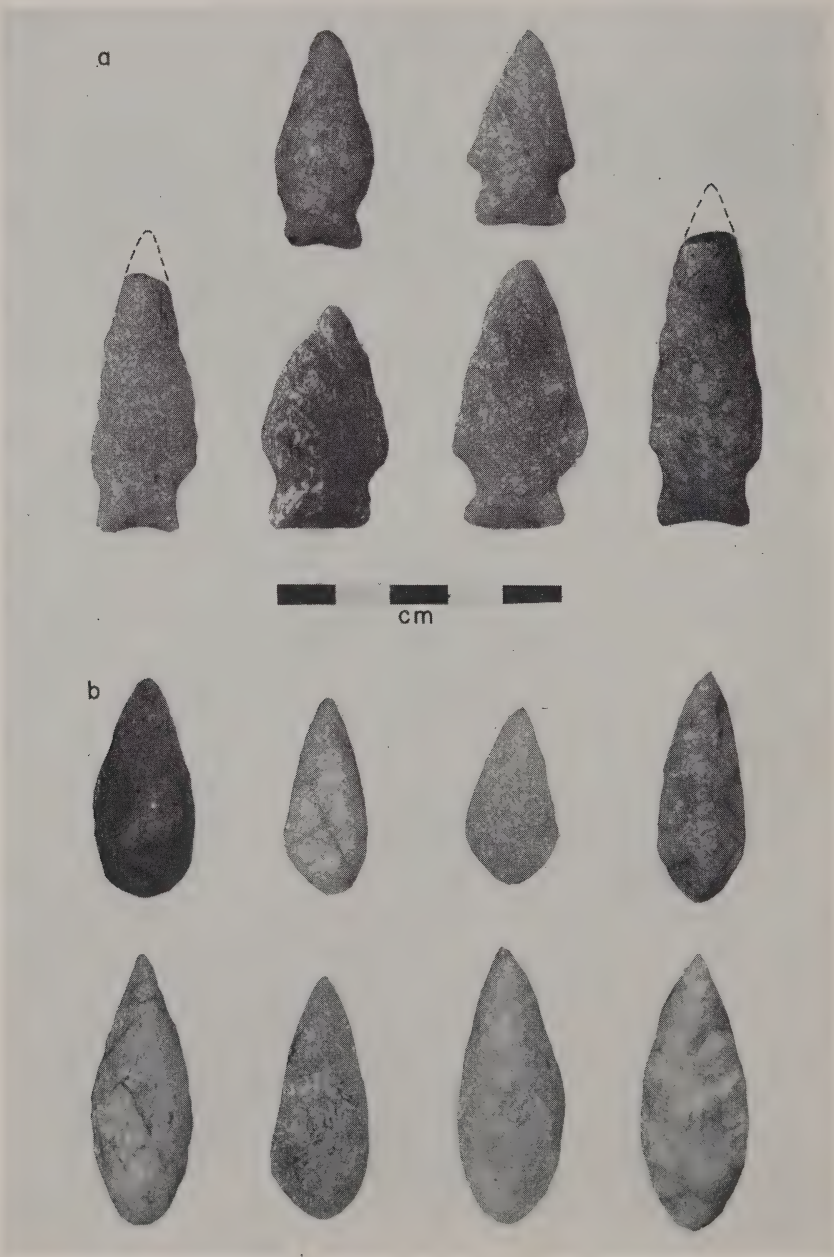
Projectile points: *a*, Type C, Triangular; *b*, Type D, Crude Triangular.



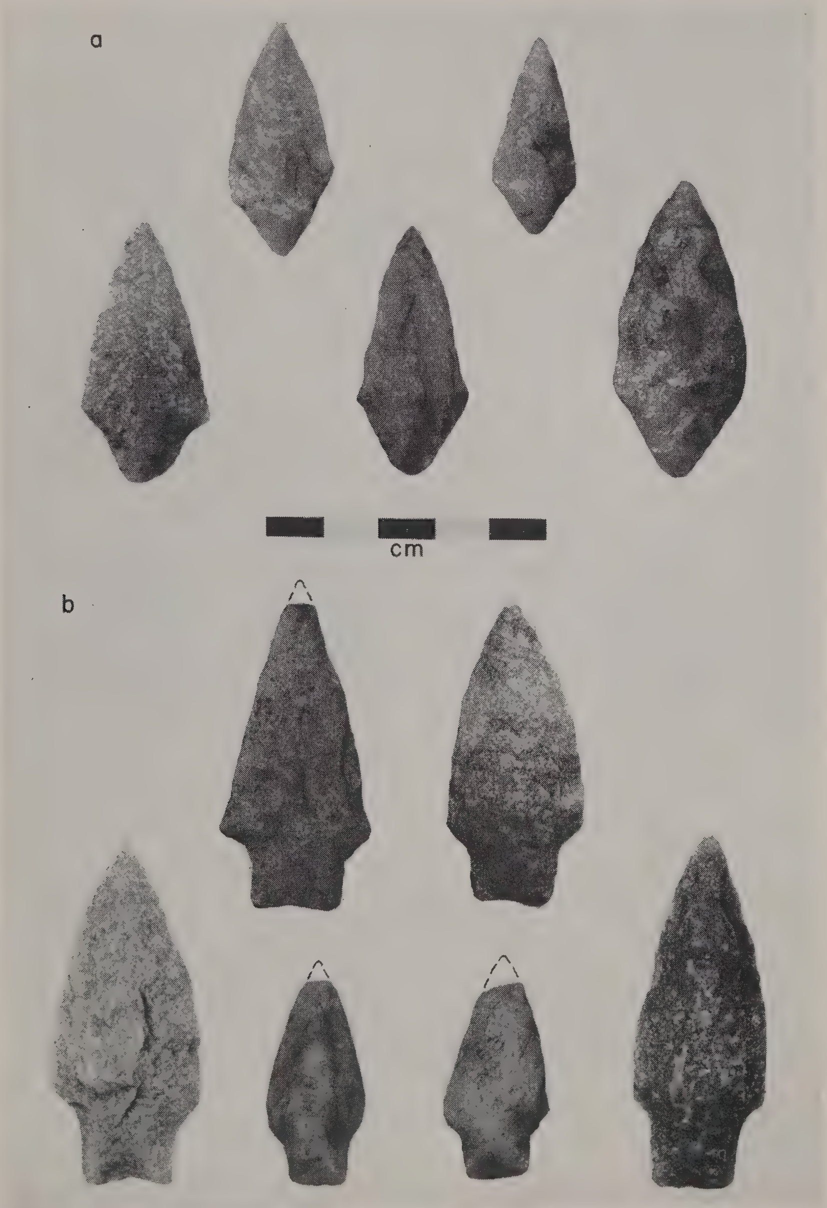
Projectile points: *a*, Type E, Pentagonal; *b*, Type F, Lanceolate.



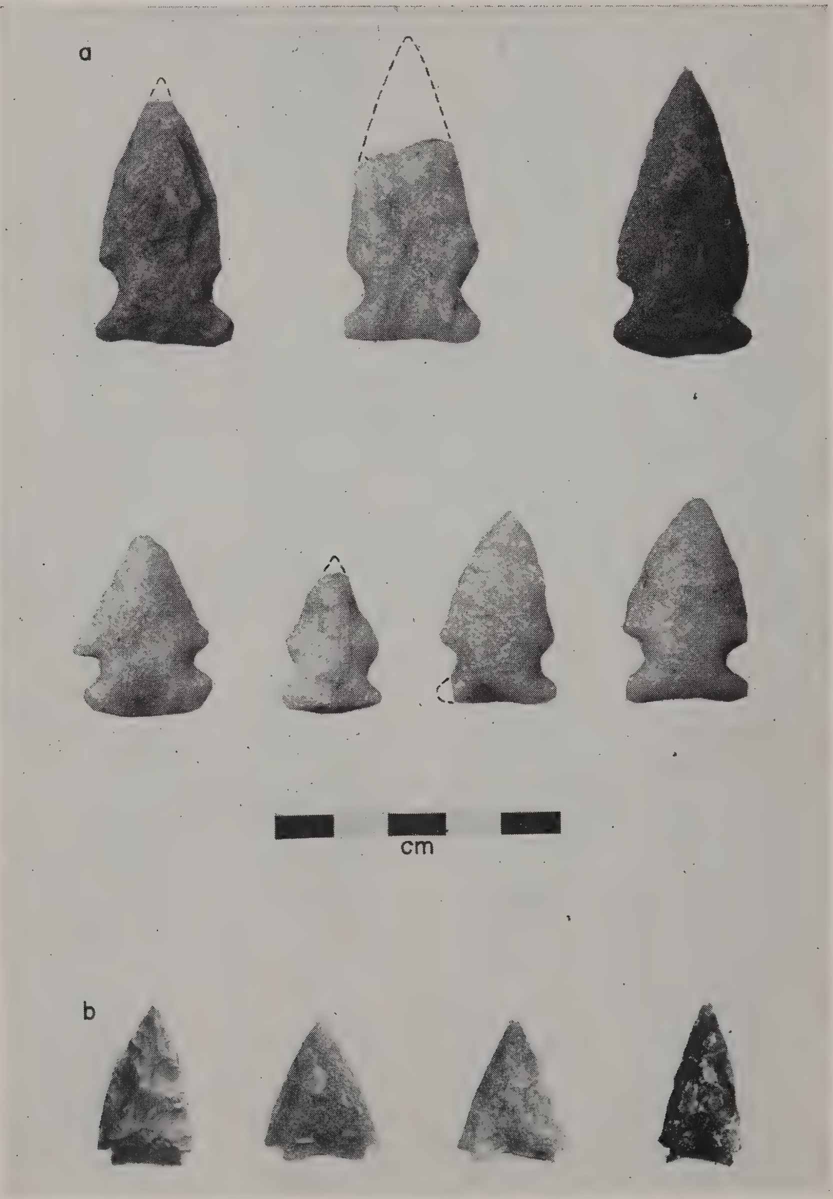
Projectile points: *a*, Type G, Notched Base; *b*, Type H, Stubby Barbed.



Projectile points: *a*, Type I, Notched Stemmed; *b*, Type J, Ovoid Base.



Projectile points: *a*, Type K, Contracting Stem; *b*, Type L, Parallel-sided Stemmed.



Projectile points: *a*, Type M, Side-notched; *b*, Type O, Eared or Corner-notched.

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